Proceedings of the

American Association of Textile Chemists and Colorists

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Editor of Proceedings: Carl Z Draves, 30 Lahey St, New Hyde Park, N Y

March 30, 1953

CALENDAR

AATCC

COUNCIL
April 17, June 5.

NATIONAL CONVENTIONS
September 17-19. 1953 (Hotel Conrad Hilton, Chicago); Sept 15-18, 1954 (Atlanta Biltmore, Atlanta, Ga); Sept 21-23, 1955 (Chalfonte-Haddon Hall, Atlantic City, N J).

HUDSON-MOHAWK SECTION
May 8 (Albany); June 19 (Outing).

MID-WEST SECTION
April 18 (Netherland Plaza, Cincinnati, O); June 13 (Outing, Lake Delavan, Wis); November 7 (Hotel Bismarck).

NEW YORK SECTION
April 17 (Fairleigh Dickinson College, Rutherford, N J); May 22 (Kohler's Swiss Chalet, Rochelle Park, N J); June 19 (Outing, North Jersey CC, Wayne, N J).

NORTHERN NEW ENGLAND SECTION
April 17 (Lowell Textile Institute, Lowell); May 15 (Andover CC, Andover); June 12 (Annual Outing); Nov 6 (LTI); Dec 4 (MIT Faculty House).

PHILADELPHIA SECTION
April 17 (Hotel DuPont, Wilmington); May 22 (Outing Manufacturer's Golf & Country Club); Sept 11; Oct 23; Dec 4; Jan 15, 1954.

PACIFIC SOUTHWEST SECTION
April 24 (Nikabob Cafe, Los Angeles).

PIEDMONT SECTION
April 11, (Robert E Lee Hotel, Winston-Salem, N C); June 12-13 (Mayview Manor, Blowing Rock, N C); Sept 12 (Hotel Charlotte, Charlotte, N C).

RHODE ISLAND SECTION
Apr 24 (Wannamoisett C C); May 22 (Prov Eng Soc); June 12 (Outing, Wannamoisett C C); Oct 23 (Prov Eng Soc); Dec 4 (Annual Meeting, Sheraton-Biltmore, Providence).

SOUTHEASTERN SECTION
April 18 (Biltmore Hotel, Atlanta, Ga); June 19-20 (Outing, Radium Springs).

SOUTH CENTRAL SECTION
May 23 (Patten Hotel, Chattanooga, Tenn); Aug 21-22 (Outing, Chattanooga Golf & Country Club, Chattanooga, Tenn); Dec 5 (Patten Hotel).

WESTERN NEW ENGLAND SECTION
May 8 (Ladies Night); June 19 (Outing); Oct 2, Nov 6 and Dec 11 (Rapp's).

Note

Re: Mid-West Section Outing

THE 1953 Outing of the Mid-West Section will be held on June 13th rather than June 20th, as previously listed in the Calendar.

Minutes
Mid-West Section Winter Meeting

February 14, 1953
Bismarck Hotel, Chicago, Ill

THE Winter meeting of the Mid-West Section, honoring Past Chairmen of the Section, was held at the Bismarck Hotel, Chicago, Ill, on February 14, 1953. 110 people attended the afternoon business and technical session and 112 were attracted to the evening dinner meeting.

AFTERNOON SESSION

Chairman Alfred J Olsen, Phoenix Hosiery Co, called the afternoon session to order at 2:15. Business consisted of an introduction of new members and guests, reports by the Secretary and Treasurer, a discussion of future meeting sites, and reports by committee chairmen. Arthur I Hultberg, Bear Brand Hosiery Co, was appointed a judge on the Intersectional Contest Committee, with David A Anderson, Western Felt Works, as an alternate.

The following committee personnel were named:

Outing——William Paine (Chairman), David Anderson, Frank Beverly, Victor Brown, Robert Brenner, Kirk Ferguson, Frank Myers, James O'Malley, Thomas Ritajczak and Earl Schroeder.

Stream Pollution——C Fred Gurnham (Chairman), R C Anderson, J Crane, L Johnstone and Harry Proudfoot.

Vice Chairman Gordon Stott introduced Dr C C Yeager, Scientific Oil Compounding Co, who spoke on "Fungicides in Textiles as Sales Promotion Tools".

EVENING SESSION

The evening meeting was opened by Chairman Olson, who turned it over to the toastmaster of the evening, Elmer Smith, American Aniline Products, Inc. Mr Smith developed his theme along the lines of a chronological discourse, covering events that took place during the years since the organization of the Section in 1929.

Mr Smith first introduced Carl Bick, the Section's initial chairman, who commented on the early organization and attempts to develop membership and interest. Mr Bick later served the Section as Chairman again in 1932.

Mr Smith next spoke briefly on the organization as it existed under the late Edward W Morgan.

The late Eric Hempel was Chairman in 1933, and Clarence Wille, who served as secretary at the time, was asked to comment on the "State of the Section" at that time.

Mr Smith next introduced Arthur Brainerd, current vice president (Western Region), who served as chairman of the Mid-West Section during 1934 and 1935. In addition to Mr Brainerd's general comments covering the organization during his years as chairman, he made a suggestion that the Mid-West Section appoint a custodian to maintain certain basic records on a continuing basis. Mr Brainerd suggested the appointment of Joseph Jones to this position. Mr Jones, however, was not in attendance, and no further action was taken.

Following Mr Brainerd's remarks, Mr Smith successively introduced E J Siegrist, Chairman, 1936-1937; Herman Boxser, Chairman, 1938-1939; and Archie Alexander, Chairman, 1940-1941.

Virgil Hartquist, 1942-1943 Chairman, was absent due to illness in his family. Mr Smith commented on his services to the Section.

Mr Smith next introduced A J Feit, who served four consecutive years from 1944 to 1947. Mr Feit spoke briefly about the Section, which during his long tenure as Chairman, was host at AATCC's Chicago Convention in 1946. Following Mr Feit's comments Mr Smith spoke on behalf of the absent J Jones, 1948-1949 Chairman.

Mr Smith's final introduction was that of Elliott Morrill, who is the Section's "newest" Past President (1950-1951).

Respectfully submitted,
VICTOR H LAWRENCE,
Secretary

PRELIMINARY INVITATION TO CONTRIBUTE TECHNICAL PAPERS AT 1953 CONVENTION

PREPARATIONS for the technical program at the 1953 National Convention, to be held in Chicago, Illinois, Sept 17-19, are now underway. Persons desiring to present a paper should proceed according to established instructions and regulations as outlined on page P171 of the March 16th issue.

1952 Intersectional Contest
Second Prize Winner——

STRIPPING COLOR FROM DYED HYDROPHOBIC FIBERS*

PHILADELPHIA SECTION

INTRODUCTION

THE increasing production and use of the so-called hydrophobic fibers makes desirable a greater knowledge of many of the phases of their textile applications. The removal of color from these fibers is one of the unfortunate necessities with which the dyer is faced and is a process about which very little information has been published. Stripping of color from textile materials is resorted to for several reasons: First, to correct the color of uneven and poorly dyed fibers, yarns and fabrics; second, to change the color of dyed textiles to a shade that is more desirable and hence more saleable; and finally, recovery and utilization of waste.

With the hydrophylic fibers, that is, those fibers that are capable of being wetted, swollen, penetrated or generally being able to enjoy intimate molecular association with water, the stripping of color is relatively easy and is largely a function of the chemistry of the dyestuffs involved. The materials producing these color-stripping actions are generally water-soluble substances that react in the aqueous phase, and as such they present no great difficulty to the average dyer when he uses them to strip color from the hydrophylic fibers.

With fibers that are not easily wet or swollen with water, which we choose to call "hydrophobic" fibers, the problem with which the dyer is faced is greatly magnified and taxes his ingenuity. In addition to the problem posed by the chemistry of the dyestuffs involved, there is the difficulty of bringing the stripping agent and the dyestuff into the same reaction environment.

There is not a clear-cut line that divides the many useful textile fibers into those that possess an affinity for water and those that do not, but rather one can array the various textile materials ranging from those showing extreme hydrophobicity through those materials that are intermediate in character to those showing a marked tendency to associate with water.

We have chosen the following principal fibers showing this hydrophobic characteristic: the vinylidene chloride fiber Saran, the acrylic fibers dynel, Orlon, Acrilan and X-51, the polyester-fiber Dacron, the polyamide-fiber nylon and the cellulose acetate fiber.

COMMITTEE

M J Reider, *Chairman and Speaker*

N Abernathy	W T Jockers
C T Anderson	J F Kalina
J Bauer	J W MacNeil
B Baum	J Monego
J J Benischeck	C J Monego
B Blechman	H L Morgan
F Brita	J J Murphy
J R Brown	P Pernice
L C Cloninger	W Pheil
J E Conway	H S Porter
E C Diehl	H Rollins, Jr
A W Etchells	A Scache
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T H Hart	S Wilkinson
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R Hiester	G G Wunsch
C W Holweger, Jr	F J DeMaria, *Secy*

M J Reider

This paper deals with a series of experiments on the stripping of color from textiles made from such hydrophobic fibers as nylon, acetate, "Orlon" acrylic fiber, "Dacron" polyester fiber, "Acrilan" acrylic fiber, dynel, X-51, and "Saran" vinylidene chloride polymer. The stripping procedures are described and the results are evaluated from the following standpoints:

1) Amount of color removed.
2) Effect of stripping on redyeing.
3) Effect of stripping on tensile strength.
4) Effect of stripping on light fastness.

EXPERIMENTAL

ORLON 41 —— The most commonly used dyes on Orlon Type 41 are classed as acid-type dyestuffs, and they are applied by the cuprous-ion technique. In order to study stripping procedures on fabric made from Type 41 Orlon, a series of dyeings was made at 2% concentrations with the following dyestuffs:

Quinoline Yellow PN
Pontacyl Fast Red AS Extra Conc (CI 176)
Anthraquinone Blue SWF Conc 150% (Pr 12)

Pieces of the dyed "Orlon" fabric were then treated in a series of experiments to study the effect of different stripping agents and procedures. The results of this study are shown in Table I.

Those fabrics which were successfully stripped of their color were then redyed to approximately the original shade and tests were made of tensile strength, light fastness and fastness to alkaline perspiration. The most effective stripping procedure was found to be that with 10% sodium chlorite at the boil and adjusted to pH 3-4 with nitric acid.

By this method of stripping, the fabric dyed with the Quinoline Yellow PN showed practically complete color removal, while the fabric dyed with the Pontacyl Fast Red AS showed about 90% color removal, a beige shade resulting. The Anthraquinone Blue SWF stripped to a nude shade with about 90-95% of the color removed.

Two other procedures which proved to be of interest on Orlon 41 were as follows:

1.4 g/l sodium hypochlorite for ½ hour at 170°F; and a

2.0% solution of nitric acid for 1 hour at the boil.

The following results were obtained by these methods:

	Approx. Color Removal %	*Final Shade*
WITH SODIUM HYPOCHLORITE		
Yellow	70	same
Red	50	same
Blue	50	same
WITH NITRIC ACID		
Yellow	50	same
Red	70	tan
Blue	70	rust

The material stripped with sodium hypo-

* Presented at the Hotel Statler in Boston by M J Reider on Nov 8, 1952.

chlorite can be redyed to the original shade. When nitric acid is used, the yellow may be redyed to the same shade, while the stripped red and blue dyeings can be redyed with the original amount of color to noticeably duller shades.

The use of common salt as a stripping agent gave interesting results in the color removal of light shades. Depending upon the strength of the original dyeing, 25 to 75 per cent of the color can be removed with a solution of 30% sodium chloride (on weight of fabric, owf) at the boil. In medium to heavy shades, where partial stripping may be required because of unevenness or too heavy a dyeing, the use of salt may help to obtain a satisfactory result.

Stripping with sodium chlorite did not affect the fastness properties of the redyed samples. Tensile-strength measurements showed a loss of 7 to 11 per cent after stripping and redyeing.

TABLE I
RESULTS OF STRIPPING PROCEDURES FOR ORLON 41

40:1 Liquor Ratio	*2.0% Quinoline Yellow PN*	*2.0% Pontacyl Fast Red AS Extra Conc (CI 176)*	*2.0% Anthraquinone Blue SWF Conc 150% (Pr 12)*
1) 25% soap ¾ hr at boil	poor	poor	poor
2) 10% soap 10% ammonia ¾ hr at boil	poor	poor	poor
3) 10% sodium hydrosulfite ¾ hr at boil	poor	poor	poor
4) 10% sodium hydrosulfite 10% sodium sulfide 2% caustic soda ¾ hr at boil ¾ hr at boil	poor	poor	poor
5) 10% hydrogen peroxide, 35% ¾ hr at boil	poor	poor	poor
6) 10% sodium sulfoxylate-formaldehyde 10% acetic acid ¾ hr at boil	poor	poor	poor
7) 10% zinc sulfoxylate-formaldehyde 10% acetic acid ¾ hr at boil	poor	poor	poor
8) 1.4 g/l sodium hypochlorite ¾ hr at 170°F	good	fair	fair
9) 10% zinc sulfoxylate-formaldehyde 10% acetic acid Followed by: 1.4 g/l sodium hypochlorite ½ hr at 170°F	good	fair	fair
10) 2% solution of nitric acid 1 hr at boil	fair	good	fair
11) 10% oxalic acid ¾ hr at boil	poor	poor	poor
12) 20% potassium permanganate ½ hr at room temperature Followed by: 10% sodium hydrosulfite ½ hr at 130°F	poor	poor	poor
13) 10% sodium chlorite 5% nitric acid 1 hr at boil	excellent	good	good
14) 20% Nullapon B 10% soda ash 1 hr at boil	poor	poor	poor
15) 20% Sequestrene A ¾ hr at boil Followed by: 10% sodium hydrosulfite ½ hr at boil	poor	poor	poor
16) 10% formamidine sulfuric acid ¾ hr at boil	poor	poor	poor
17) 10% Peregal OK 1 hr at boil	poor	poor	poor
18) 10% Igepal CA Extra Conc 1 hr at boil	poor	poor	poor
19) 20% Peregene A 1 hr at boil	poor	poor	poor
20) 10% Kalex ¾ hr at boil Followed by: 10% sodium hydrosulfite ½ hr at boil	poor	poor	poor
21) 30% sodium chloride 1 hr at boil	fair	fair	fair
22) 10 g/l Versene pH 3-4 with nitric acid 1 hr at boil	fair	fair	fair

ORLON 81——Only continuous-filament Orlon Type 81 was used in the following investigation, and the dyeing was carried out at 250°F. Eight-ounce packages of Type 81 continuous-filament Orlon were precision wound on 1⅝" metal perforated tubes. These were dyed in a single-package dyeing machine by the following procedures:

2% Quinoline Yellow PN Extra Conc
5% copper sulfate
10% glyoxal (100% active)
2% Pontacyl Fast Red AS Extra Conc
5% copper sulfate
10% glyoxal (100% active)
2% Anthraquinone Blue SWF Conc 150%
5% copper sulfate
4% hydroxylammonium sulfate

Dyeings were started at 130°F, the temperature was raised to 250°F, and the dyeings were run for one hour at 250°F. The dyeings were rinsed, soaped at 195°F with 1% of a synthetic detergent and rinsed.

All stripping tests were done on 2-gram skeins with a 20-to-1 liquor ratio. Glass tubes within a brass bomb held the dyed material while being rotated in a glycerin bath, which was maintained at 250°F. All tests were run for 30 minutes, followed by a warm rinse. Most tests done at high temperatures with common soaps and chemicals showed very little promise. The only excellent strips were obtained with 5% sodium chlorite and 5% acetic acid, 56%, or 3% formic acid, 90%. Practicability of these tests has not been determined because tests were run in glass bottles. These combinations can be very corrosive to machinery and more work should be done to determine what type metals will stand this treatment. The above amounts of chemicals were tried on the same yarn at the boil, but the results were not so good. Higher concentrations of these chemicals would be needed to get a strip as good as was obtained at 250°F. This just about holds true with all other tests made. Although a good strip was not obtained, the results were always slightly better when done at high temperature than when done at the boil.

Very interesting results were obtained when 30% and 50% of sodium chloride owf was used at high temperature. Although a good strip was not obtained, 30% to 50% of the original color was removed. This can be particularly helpful when a dyeing is uneven and just enough color has to be removed that an addition of dyestuff will level the dyeing.

Practical mill runs with this method have removed up to 75% color on combination

light shades. Future work might disclose the use of smaller amounts of salt in the dyebath for leveling features.

Table II shows other chemicals used for stripping tests.

DACRON —— To determine the optimum conditions for stripping Dacron all tests were carried out on fabric dyed with the following acetate colors:

0.375%	Celanthrene Fast Yellow GL Conc 300%
1.0%	Cibacete Yellow GBA Extra (Pr 242)
1.0%	Eastman Yellow GLF
1.0%	Celliton Fast Pink RFA
1.0%	Cibacete Scarlet BRN
1.0%	Cibacete Brilliant Blue BG New (Pr 228)
1.0%	Eastman Fast Blue GLF

The majority of the stripping tests were run on dyeings that had been dyed with monochlorobenzene* as a "carrier." Investigation showed that dyeings made with different carriers gave similar stripping results.

Various stripping agents and conditions were evaluated, and the results are tabulated in Table III.

As most dyeings made on Dacron are likely to be formulated with a combination of dyestuffs, it is anticipated that the most effective stripping will be obtained by a two-bath procedure. The material is first treated with either sodium or zinc sulfoxylate-formaldehyde at a pH of 3 to 4, followed by a fresh bath containing sodium chlorite or sodium hypochlorite (at a pH of 3 to 4). A "carrier" is used in both treatments, for in most instances they proved advantageous. Some "carriers" are oxidized by sodium chlorite, but benzoic acid and monochlorobenezne appear to be suitable for this purpose.

Generally speaking, Dacron dyed with single dyestuffs may be stripped by a one-bath method. Azoic-type dyes can be stripped with a sulfoxylate and the anthraquinone types with sodium chlorite or sodium hypochlorite. An exception to this is Celanthrene Fast Yellow GL Conc 300%, which appears to be stripped better with a sulfoxylate than a chlorite.

Light- and wash-fastness tests were made on the original and the redyed material. The stripping procedures did not appear to affect the fastness of the redyeing with the exception of Eastman Fast Blue GLF, in which case the light fastness of the redyeing was noticeably inferior to the fastness of the original. Tensile-strength tests showed a loss of less than 10% after stripping and redyeing.

* Monochlorobenzene is a toxic chemical and adequate ventilation must be provided.

TABLE II
TRIAL STRIPPING FORMULAS FOR ORLON 81

All percentages owf

a)	10% Sulfoxite C 5% acetic acid, 56%
b)	10% Sulfoxite S (zinc sulfoxylate-formaldehyde) 5% acetic acid
c)	10% sodium hydrosulfite 5% caustic soda
d)	10% soap
e)	10% nonionic detergent
f)	10% sodium hydrosulfite 10% caustic soda 10% sodium sulfide
g)	10% sodium hypochlorite (18% available chlorine)
h)	10% potassium permanganate followed by 10% sodium hydrosulfite
i)	10% ammonia
j)	5% para-phenylphenol 1¾% caustic soda
k)	5% hydroxylammonium sulfate
l)	5% hydroxylammonium sulfate 4% copper sulfate
m)	water
n)	10% Nullapon B
o)	10% hydrogen peroxide, 35%
p)	10% Peregal OK

DYEING PROCEDURE FOR DACRON

40:1 liquor ratio
5 g/l monochlorobenzene and
1% detergent
1 hour at 200°F
Rinsed
Scoured 15 mins at 200°F with
1% detergent

DYNEL——The dynel used was plain woven piece goods, dyed with acetate and acid-milling dyes.

Basic colors were omitted on account of their poor light fastness. Since direct dyes react and are applied similarly to acid milling dyes, they were not included. Metalized and chrome colors have very little affinity for dynel. Vat dyes are in the early stages of application. However, some work was done with the latter in view of their outstanding light fastness and possible

TABLE III
RESULTS OF STRIPPING DACRON

	Grams Reagent per Liter	*0.375% Celanthrene Fast Yellow GL Conc 300%*	*1.0% Cibacete Yellow GBA Ex Pr 242*	*1.0% Eastman Yellow GLF*	*1.0% Celliton Fast Pink RFD*	*1.0% Cibacete Scarlet BRN*	*1.0% Cibacete Brilliant Blue BG New Pr 228*	*1.0% Eastman Fast Blue GLF*
(1)	2 sodium chlorite 2 nitric acid 5 monochlorobenzene ½ hr at 200°F	poor	poor	poor	excellent	fair	fair	excellent
(2)	2 sodium chlorite 2 nitric acid 20 benzoic acid ¾ hr at boil	poor	poor	poor	excellent	fair	fair	excellent
(3)	2 sodium chlorite 2 nitric acid 20 salicylic acid ¾ hr at boil	poor	poor	poor	poor	poor	poor	poor
(4)	7 sodium hypochlorite ¾ hr at room temperature	poor	poor	poor	poor	poor	poor	poor
(5)	7 sodium hypochlorite ¾ hr at 160°F	poor	poor	poor	good	poor	fair	excellent
(6)	7 sodium hypochlorite 5 monochlorobenzene ¾ hr at 160°F	good	good	excellent	good	fair	fair	excellent
(7)	7 sodium hypochlorite 20 benzoic acid ¾ hr at 200°F	poor	fair	fair	good	fair	fair	good

(Continued on following page)

TABLE III (continued)

Grams Reagent per Liter	0.375% Celanthrene Fast Yellow GL Conc 300%	1.0% Cibacete Yellow GBA Ex Pr 242	1.0% Eastman Yellow GLF	1.0% Celliton Fast Pink RFD	1.0% Cibacete Scarlet BRN	1.0% Gibacete Brilliant Blue BG New Pr 228	1.0% Eastman Fast Blue GLF
(8) 7 sodium hypochlorite 5 para-phenylphenol ¾ hr at 200°F	poor	poor	poor	poor	poor	poor	fair
(9) 7 sodium hypochlorite 5 Albatex PO ¾ hr at 160°F	poor	poor	poor	poor	poor	poor	fair
(10) 2 sodium sulfoxylate-formaldehyde 2 acetic acid ¾ hr at boil	poor	poor	poor	poor	poor	poor	poor
(11) 2 sodium sulfoxylate-formaldehyde 2 salicylic acid ¾ hr at boil	poor	poor	poor	poor	poor	poor	poor
(12) 2 sodium sulfoxylate-formaldehyde 20 benzoic acid ¾ hr at boil	fair	poor	poor	poor	good	poor	poor
(13) 2 sodium chlorite 2 zinc sulfoxylate-formaldehyde 2 nitric acid 20 salicylic acid ¾ hr at boil	poor	poor	poor	poor	poor	poor	poor
(14) 2 zinc sulfoxylate-formaldehyde pH 3-4 with acetic acid 5 monochlorobenzene ¾ hr at 200°F	poor	poor	fair	poor	good	poor	poor
(15) 2 zinc sulfoxylate-formaldehyde pH 3-4 with acetic acid 5 monochlorobenzene ½ hr at 200°F Followed by 2 sodium chlorite 2 nitric acid 20 benzoic acid ½ hr at 200°F	good	excellent	excellent	excellent	excellent	excellent	excellent
(16) 2 zinc sulfoxylate-formaldehyde pH 3-4 with acetic acid 5 monochlorobenzene ½ hr at 200°F Followed by 2 sodium chlorite 2 nitric acid 5 monochlorobenzene ½ hr at 200°F	good	excellent	excellent	excellent	excellent	fair	excellent
(17) 2 sodium sulfoxylate-formaldehyde 5 monochlorobenzene ¾ hr at boil Followed by 7 sodium hypochlorite 5 monochlorobenzene ¾ hr at 160°F	good	good	excellent	excellent	fair	good	good
(18) 2 sodium sulfoxylate-formaldehyde 20 benzoic acid ¾ hr at boil Followed by 7 sodium hypochlorite 5 monochlorobenzene ¾ hr at 160°F	good	excellent	excellent	fair	excellent	fair	fair
(19) 2 sodium sulfoxylate-formaldehyde 20 salicylic acid ¾ hr at boil Followed by 7 sodium hypochlorite 5 monochlorobenzene ¾ hr at 160°F	good	good	good	fair	excellent	fair	fair
(20) 2 sodium sulfoxylate-formaldehyde 20 salicylic acid 2 acetic acid ¾ hr at boil Followed by 7 sodium hypochlorite 5 monochlorobenzene ¾ hr at 160°F	good	good	excellent	fair	excellent	fair	fair

(Concluded on following page)

TABLE III (concluded)

Grams Reagent per Liter	0.375% Celanthrene Fast Yellow GL Conc 300%	1.0% Cibacete Yellow GBA Ex Pr 242	1.0% Eastman Yellow GLF	1.0% Cellitон Fast Pink RFD	1.0% Cibacete Scarlet BRN	1.0% Gibacete Brilliant Blue BC New Pr 228	1.0% Eastman Fast Blue GLF
(21)							
2 sodium sulfoxylate-formaldehyde	good	good	excellent	good	good	fair	fair
5 para-phenylphenol							
¾ hr at boil							
Followed by							
7 sodium hypochlorite							
5 para-phenylphenol							
¾ hr at 160°F							
(22)							
2 sodium sulfoxylate-formaldehyde	good	excellent	excellent	excellent	excellent	excellent	excellent
20 benzoic acid							
½ hr at boil							
Followed by							
2 sodium chlorite							
2 nitric acid							
20 benzoic acid							
½ hr at boil							
(23)							
2 sodium sulfoxylate-formaldehyde	good	excellent	excellent	excellent	excellent	fair	excellent
pH 3-4 acetic acid							
5 monochlorobenzene							
½ hr at 200°F							
Followed by							
2 sodium chlorite							
2 nitric acid							
5 monochlorobenzene							
½ hr at 200°F							
(24)							
5 potassium permanganate	poor	poor	poor	poor	poor	poor	poor
½ hr at room temperature							
Cleared with							
2 sodium bisulfite							
½ hr at 140°F							
(25)							
1 potassium permanganate	poor	poor	poor	poor	poor	poor	good
5 hydrochlorite acid							
½ hr at boil							
Cleared with							
sodium hydrosulfite							
(26)							
5 potassium permanganate	poor	poor	poor	poor	poor	poor	poor
5 hydrochloric acid							
½ hr at boil							
Cleared with							
sodium hydrosulfite							
(27)							
2 sodium peroxide	poor	poor	poor	poor	poor	poor	poor
5 monochlorobenzene							
¾ hr at 190°F							
(28)							
2 sodium hydrosulfite	poor	poor	good	poor	poor	poor	good
4 sodium sulfide							
2 caustic soda							
¾ hr at boil							
(29)							
1 sodium hydrosulfite	poor	poor	poor	poor	poor	poor	poor
1 caustic soda							
0.003 anthraquinone paste (30%)							
¾ hr at 200°F							
(30)							
20 sodium hydrosulfite	poor	poor	good	poor	poor	poor	good
30 caustic soda							
0.1 anthraquinone paste (30%)							
(31)							
5 sodium bichromate	poor	poor	poor	poor	poor	poor	good
5 hydrochloric acid							
½ hr at boil							
(32)							
5 sodium bichromate	poor	poor	poor	poor	poor	poor	good
5 sulfuric acid							
½ hr at boil							
(33)							
15 sodium chloride	poor	poor	poor	poor	poor	poor	poor
¾ hr at boil							
(34)							
15 sodium chloride	poor	poor	poor	poor	poor	poor	poor
5 monochlorobenzene							
¾ hr at boil							
(35)							
15 sodium sulfate	poor	poor	poor	poor	poor	poor	poor
¾ hr at boil							
(36)							
15 sodium sulfate	poor	poor	poor	poor	poor	poor	poor
5 monochlorobenzene							
¾ hr at boil							

TABLE IV

TEMPERATURE EFFECT ON THE AREA OF DYNEL FABRIC

TIME—1 HOUR

Temp (°F)	Percent Loss in Area pH 2.0	pH 5.0	pH 9.0	pH 11.0
150	4.0	4.01	4.01	4.01
180	11.15	11.15	11.15	7.16
212	11.16	8.33	11.16	15.15
220	10.17	10.17	10.17	10.17
230	20.8	20.8	25.0	25.0
240	45.0	42.5	37.5	43.17
250	51.27	51.27	40.85	40.15
260	51.27	51.25	40.85	37.0

future application.

Both dischargeable and nondischargeable types of acetate and acid-milling colors were used.

The dyes selected were the following:

Type	Dye Selected	Mfr
Dischargeable Acetate	Eastman Fast Blue GLF (No Pr)	Eastman
Nondischargeable Acetate	Celanthrene Brill Blue FFS Conc 200% (Pr 238)	Du Pont
Dischargeable Acid-Milling	Pontacyl Fast Blue 5R Conc (C I 289)	Du Pont
Nondischargeable Acid-Milling	Anthraquinone Blue SWF Conc 150% (Pr 12)	Du Pont
Soluble Vat Dye	Algosol Blue O4B (C I 1184)	General

The scouring and dyeing procedures used were those outlined in *Dyeing and Finishing Techniques for Dynel* (1951 Edition) issued by Carbide and Carbon Company.

The possibility of using high temperature techniques for stripping dynel was considered. The effect of temperature on the dynel fabric was studied, and the results shown in Table IV indicated that temperatures above 220°F should not be used on this fiber. The stripping tests were then conducted at temperatures obtainable in open systems.

Table V shows the conditions of the stripping tests that were performed.

TABLE V

RESULTS OF STRIPPING DYNEL

CONDITIONS

Time: 1 hour unless otherwise indicated. *Liquor Ratio:* 75/1. *Percentages:* on weight of dynel fiber unless otherwise indicated.

Ratings: based on average results from all dyeings used; expressed as *poor, fair, good,* or *excellent.*

Test #1
water
205°F——poor

#2
10% ZnS_2O_4
180°F——poor

#3
10% $NaHSO_2 \cdot CH_2O \cdot 2H_2O$
pH3.5
205°F——good

#4
10% Zn ($HSO_2 \cdot CH_2O_2$)
pH 3.5 with acetic acid
205°F——good

#5
10% Zn (OH) ($HSO_2 \cdot CH_2O$)
pH 3.5 with acetic acid
205°F——fair

#6
10% Na ClO_2 (Textone)
pH 3.7 with acetic acid
205°F——excellent

#7
10% HNO_3, conc
205°F——good

#8
10% $Na_2Cr_2O_7$
10% H_2SO_4, conc
205°F——fair

#9
10% oxalic acid, cryst
pH 2.4
205°F——poor

#10
10% H_2SO_4, conc
10% $KMnO_4$
205°F——fair

#11
10-vol H_2O_2
pH 7.0
205°F——good

#14
10% Na_2CO_3
10% $Na_2S_2O_4$
pH 9.8
160°F——poor

#15
10% Zn ($HSO_2 \cdot CO_2O)_2$
10% anthraquinone
pH 3.2 with acetic acid
205°F——good

#16
10% Na OC1, 12% active
pH 1
100°F——poor

#18
10g/l formamidine sulfuric acid
pH 9.0 with NaOH
180°F——poor

#20
20% peracetic acid
neutralized with NaOH
205°F——fair

#21
10% ammonium persulfate
180°F——poor

#22
15% Arostit RFL
in 10% soln NaOH
160°F——poor

#23
14 g stannous chloride
55 ml HCl, conc
metallic tin
160°F——poor

#24
15% Arostit RFL
in 10% soln NaOH
205°F——poor

#25
10% $Na_2S_2O_4$
10% Reginol 125
in 10% soln NaOH
160°F——poor

#26
10% Textone
pH 4.0 with nitric acid
205°F——poor

#27
10% Textone
ph 2.0 with nitric acid
205°F——excellent

#28
1.5 g Na oleate
in 10% soln NaOH
205°F——fair

#29
in 1% soln NaOH
205°F——fair

#30
20% Na_2CO_3
205°F——fair

#34
15% Kalex
160°F——fair

#35
15% sodium tripolyphosphate
205°F——poor

#36
1.5g Na oleate
in 300 ml water
205°F——fair

#37
10% carbon black
205°F——good

#38
2g NaOH
1g $Na_2S_2O_4$
2g Peregene A
in 300 ml water
100°F——fair

#39
1% monochlorobenzene
205°F——good

#40
10% $Na_2S_2O_4$
3g Peregene A
in 1% soln NaOH
poor

#41
10% Dekol NW
in 1% soln NaOH
pH 12.0
160°F——poor

#42
10% $Na_2S_2O_4$
30% anthraquinone paste, 30%,
in 1% soln NaOH
160°F——poor

#43
15% Dissolving Salt B
205°F——fair

#44
10% urea
10% $Na_2S_2O_4$
10% NaOH
160°F——fair

#45
10% $Na_2S_2O_4$
10% anthraquinone
in 1% soln NaOH
160°F——poor

#46
10% Peredine
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#47
10% carbon black
in 1% soln NaOH
205°F——fair

#48
10% Peregal OK
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#
5% NaOH
10% Lissamine A
10% $Na_2S_2O_4$
160°F——poor

#53-A
10% $Na_2S_2O_4$
10% Lissamine B
in 1% soln NaOH
160°F——poor

#56
10% Na_2CO_3
10% $Na_2S_2O_4$
10% Fixanol
160°F——fair

#57
10% Albatex PO
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#59
1% polyvinyl alcohol
pH 6.5
205°F——poor

#60
10% Fixanol
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——good

#61
10% dextrose
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#62
30% anthraquinone paste, 30%
10% ZnS_2O_4
pH 7.0
180°F——fair

#64
10% Leucotrope WXN
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#65
10% Leucotrope WXN
10% NaOH
205°F——fair

(Concluded on following page)

TABLE V (concluded)

#66
10% Dissolving Salt B
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#68
10% Zn (HSO_2—CH_2O)$_2$
10% Peregene A
pH 3.5
205°F——fair

#69
Igepal CO conc
in 1% soln
205°F——poor

#71
Syntergen MV
in 1% soln
205°F——poor

#73
10% Na oleate
in 1% soln NaOH
205°F——poor

#75
10% Triton K-60
10% $Na_2S_2O_4$
in 1% soln NaOH
poor

#76
10% Zn (HSO_2—CH_2O)$_2$
10% Triton K-60
pH 3.5
205°F——poor

#77
10% urea
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#78
NaOH in 1% soln
10% $Na_2S_2O_4$
160°F——fair

#79
10% Hyamine 1622
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#80
10% Hyamine 1622
10% Zn (HSO_2 • CH_2O)$_2$
pH 3.5
205°F——fair

#81
6% H_2SO_4, conc
6% $KMnO_4$
cold——poor

#82
10% Textone
10% Kalex
205°F——good

#83
10% Textone
pH 3.4-4.0 with benzoic acid
205°F——excellent

#84
10% Textone
pH 3.8 with salicylic acid
205°F——fair

#85
10% p-phenylphenol
in 5% soln NaOH
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——good

#85
10% Textone
pH 3.8 with 5-chlorosalicylic acid
205°F——fair

#87
1.5g Na oleate
0.3g monochlorobenzene
in 300 ml H_2O
205°F——fair

#88
10% Textone
pH 3.8 with acetic acid
33% anthraquinone
paste, 30%
205°F——excellent

#89
10% Textone
pH 3.8-4.0 with acetic acid
10% beta-anthraquinone sulfonate
205°F——excellent

#90
10% beta-anthraquinonesulfonate
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#91
10% Textone
pH 3.8-4.0 with formic acid
205°F——excellent

#92
HNO_3 to pH 3.5
205°F——good

#93
10% Textone
pH 3.8 with HNO_3
33% anthraquinone paste, 30%
205°F——excellent

#94
10% Textone
pH 3.8-4.0 with HNO_3
10% beta-anthraquinonesulfonate
205°F——excellent

#95
NaOCl (12% active) 50g/l
160°F——poor

#96
NaOCl (12% active) 50g/l
205°F——poor

#97
0.3g Velanol NB
in 300 ml water
205°F——poor

#98
10% Textone
pH 4.0 with acetic acid
10% Dissolving Salt B
205°F——poor

#99
10% Textone
10% Peregene A
pH 3.8-4.0 with acetic acid
205°F——excellent

#100
10% Textone
10% Hyamine 1622
pH 3.8-4.0 with acetic acid
205°F——excellent

#101
10% Textone
10% Kalex
pH 2.0 with nitric acid
205°F——excellent

#102
10% Textone
10% Velanol B
pH 3.8-4.0 with acetic acid
205°F——excellent

#103
10% Textone
10% Velanol B
pH 2.0 with nitric acid
205°F——excellent

#104
10% $NaHSO_2$ • CH_2O • $2H_2O$
pH 3.2 with salicylic acid
205°F——poor

#105
NaOCl (12% active) 50g/l
10% Albatex PO
160°F——poor

#106
NaOCl (12% active) 50g/l
10% benzoic acid
160°F——poor

#107
10% p-phenylphenol
10% $NaHSO_2$ • CH_2O • $2H_2O$
pH 3.2
205°F——fair

#108
10% $NaHSO_2$ • CH_2O • $2H_2O$
10% Velanol NB
pH 3.2
205°F——good

#109
Two-bath method
a) 10% Zn (HSO_2 • CH_2O)$_2$
pH 3.2 with acetic acid
205°F——poor
wash well
b) 10% Textone
pH 3.9 with acetic acid
205°F——excellent

#110
10% Textone
160°F——fair

#111
10% Textone
10% $Na_2Cr_2O_7$
pH 3.8 with acetic acid
205°F——good

#112
Two-bath method
a) 10% Textone
pH 3.8-4.0 with acetic acid
205°F——excellent
wash well
b) 10% Zn (HSO_2 • CH_2O)$_2$
pH 3.2 with acetic acid
205°F——excellent

#113
Two-bath method
a) 5% Na_2CO_3
10% $Na_2S_2O_4$
160°F
wash well
b) 10% Textone
pH 3.8-4.0 with acetic acid
205°F——excellent

#114
10% formamidine sulfuric acid
pH 11.0 with NaO4
180°F——fair

#115
Two-bath method
a) 10% $Na_2S_2O_4$
in 1% soln NaOH
160°F
wash well
b) Textone
pH2.0 with nitric acid
205°F——excellent

#116
Two-bath method
a) 10% $Na_2S_2O_4$
in 1% soln NaOH
160°F
wash well
b) 1g Na oleate in
300 ml water
205°F——fair

#118
10% Textone
10% Dekol N
pH 3.8 with acetic acid
205°F——good

#119
10% Textone
10% Peregal O
pH 3.8-4.0 with acetic acid
205°F——excellent

#120
10% Textone
10% Peregal OK
pH 3.8-4.0 with acetic acid
205°F——excellent

#121
10% Textone
10% Lissamine A
pH 3.8 with acetic acid
205°F——fair

#122
10% Textone
10% Allatex PO
pH 3.8-4.0 with acetic acid
205°F——excellent

#124
10% Textone
10% Triton K-60
pH 3.8-4.0 with acetic acid
205°F——excellent

#125
10% Textone
10% $KMnO_4$
pH 3.8 with acetic acid
205°F——fair

#131
Two-bath method
a) 10% Textone
pH 3.9 with ???? acid
205°F
wash well
b) 10% Zn (HSO_2—CH_2O)$_2$
pH 3.3 with acetic acid
205°F——good

#132
Two-bath method
a) HNO_3 (conc), 12 ml
in 300 ml water
205°F
wash well
b) 10% Zn (HSO_2—CH_2O)$_2$
pH 3.3 with acetic acid
205°F——fair

#133
Two-bath method
a) 10% Zn (HSO_2—CH_2O)$_2$
pH 3.3 with acetic acid
205°F
wash well
b) 10% Textone
pH 3.9 with acetic acid
205°F——excellent

#134
10% p-phenylphenol
10% $Na_2S_2O_4$
in 1% soln NaOH
160°F——poor

#136
Two-bath method
a) 1.5g Na oleate
in 300 ml water
205°F
wash well
b) 10% Textone
pH 3.9 with acetic acid
excellent

#137
10% Textone
2% Hyamine 1622
pH 3.9 with acetic acid
205°F——excellent

#138
10% Textone
2% Hyamine 1622
pH 2.0 with nitric acid
205°F——good

#139
% NaOCl soln (12% active)
pH 11 with NaOH
160°F——poor

#140
10% Zn (HSO_2—CH_2O)$_2$
20% Hyamine 1622
pH 3.3 with oxalic acid
205°F——poor

#141
10% Zn (HSO_2—CH_2O)$_2$
10%NaH_2PO_4—H_2O
2% Hyamine 1622
pH 3.3 with acetic acid
excellent

#142
30% Stripper TS
205°F——poor

#143
20% Algepon AK
10% $Na_2S_2O_4$
in 10% soln NaOH
160°F——poor

When used for stripping dynel, reducing agents generally were not too effective. With the exception of sodium chlorite, oxidizing agents were not very successful either.

Detergents, alkalis, dispersing agents and sequestering agents removed some of the acetate-type dyes but not acid dyes. Swelling agents were effective on both acetate and acid dyes.

Sodium chlorite was superior as a stripping agent, and the addition of nitric acid to the sodium chlorite improved its action more than did other acids.

Quaternary ammonium compounds were as effective as nitric acid for use in conjunction with sodium chlorite and offered a distinct advantage in removal of vat dyes.

None of the two-bath methods shown in Table V showed superiority over the best single-bath methods.

Redyeing stripped dynel resulted in lighter shades.

Tensile-strength tests generally showed no undue loss in dynel from stripping.

Fade-Ometer tests showed no difference in light fastness between stripped and redyed dynel and regular dyed dynel except in the case of the anthraquinone dyes. These showed much greater fading on dynel that was redyed after being stripped.

Wash-fastness tests showed no difference because of stripping.

The dyestuffs that were used for redyeing stripped dynel and normal dynel fabric were as follows:

ACETATE DYES

Dischargeable

Eastman Fast Blue GLF (No Pr)
Tennessee Eastman

Celliton Fast Yellow GA (Pr 242)
General Dyestuff

Nondischargeable

Celliton Fast Pink BA (Pr 234)
General Dyestuff

Eastman Fast Yellow GLF (No Pr)
Tennessee Eastman

ACID DYES

Nondischargeable

Anthraquinone Blue SWF Conc 150% (Pr 12) ..... Du Pont

Anthraquinone Violet 3R (C I 1080)
Du Pont

During the course of the experiments, occasional pitting occurred in the stainless-steel beakers, particularly with sodium chlorite. Similar experiences of others with sodium chlorite in plant operations have been reported, so that its practical use should be observed with caution.

SARAN——Unpigmented, 22-denier, 4-inch staple, curled Saran fibers were used for the stripping studies. Although Saran vinylidine chloride polymer is ordinarily supplied dope-dyed in a wide range of shades, dyeing unpigmented staple to order provides certain advantages and maintains growing interest. Such dyeing is most readily accomplished with acetate-type dyestuffs, which are easily applied and yield good color value. Hence, only acetate dyeings were used in studying the stripping of Saran.

From a rapid survey of the applicable colors, of their fastness properties when applied to Saran and of effective dyeing methods, six acetate colors were chosen for extensive stripping tests. The dischargeable dyes were Eastman Fast Blue GLF, Cibacete Yellow GN, and Celliton

TABLE VI

STRIPPING 2% DYEINGS OF ACETATE COLORS ON SARAN STAPLE FIBER

Ratings: E—Excellent G—Good F—Fair P—Poor

Test No.	*Method of Stripping*		*Dischargeable*			*Nondischargeable*		
			Eastman Fast Blue GLF	*Cibacete Yellow GN*	*Celliton Scarlet BA*	*Celanthrene Brill Blue FFS Conc*	*Eastman Fast Yellow GLF*	*Latyl Red B*
				DETERGENTS				
1	soap 60 min	2% 50:1 212°F	P	P	P	P	G	P
2	soap 240 min	2% 100:1 212°F	F	F	P	P	E	P
3	Nacconol 60 min	2% 50:1 212°F	P	P	P	P	E	P
4	soap Nacconol 60 min	2% 2% 50:1 212°F	P	P	P	P	G	P
5	Triton x 100 60 min	2% 50:1 212°F	F	P	P	P	G	P
6	soap Triton x 100 60 min	2% 2% 50:1 212°F	P	P	P	P	F	P
				ALKALIS				
7	Hyamine 1622 30 min	½% 30:1 212°F	P	P	P	P	G	P
8	ammonium hydroxide 30 min	1% 30:1 212°F	P	P	P	P	F	P
9	sodium carbonate 30 min	1% 30:1 212°F	P	F	P	P	G	P
10	sodium hydrosulfite pH 7.5-11	10% 30:1 140-160°F	P	P	P	P	P	P

(Continued on following page)

TABLE VI (continued)

Test No.	Method of Stripping		Eastman Fast Blue GLF	Dischargeable Cibacete Yellow GN	Celliton Scarlet BA	Cellanthrene Brill Blue FFS Conc	Nondischargeable Eastman Fast Yellow GLF	Latyl Red B
11	zinc hydrosulfite 60 min	6% 30:1 210°F	P	P	P	P	P	P
12	sodium sulfoxylate-formaldehyde pH 3.2-3.5	5% 30:1 180-212°F	P	P	P	P	F	P
13	normal zinc sulfoxylate-formaldehyde pH 3.2-3.5	5% 30:1 180-212°F	P	F	P	P	G	P
14	basic zinc sulfoxylate-formaldehyde pH 3.2-3.5	5% 30:1 180-212°F	P	G	P	P	P	F
15	basic zinc sulfoxylate-formaldehyde pH 3.4 with H_2SO_4 30 min	5% 30:1 250°F	—	—	F	F	—	—
16	sodium bisulfite	300% 30:1 212°F	P	G	G	P	G	F
17	oxalic acid 60 min	300% 30:1 212°F	P	P	F	F	F	P
18	sodium bisulfite oxalic acid 60 min	150% 30:1 212°F	P	F	P	P	F	P
19	stannous chloride hydrochloric acid 60 min	30:1 200% Tin-12% 80% 212°F	P	G	F	P	E	P
20	sodium chlorite formic acid 45 min	6% 6% 30:1 180-190°F	G	F	F	P	G	P
21	sodium chlorite formic acid 45 min	12% 6% 30:1 180-190°F	G-E	F	F	F	G	F
22	sodium chlorite formic acid 45 min	4% 12% 30:1 180-190°F	E	G	F	F	G	G
23	sodium chlorite nitric acid 45 min	6% 6% 30:1 180°F	G	F	F	F	F	F
24	sodium chlorite nitric acid 60 min	10% 10% 30:1 212°F	F	P	P	P	F	F
25	sodium chlorite nitric acid 45 min	24% 12% 30:1 190°F	G	G	F	F	E	E
26	sodium chlorite nitric acid 45 min	30% 12% 30:1 180°F	G-E	—	G	G	—	E
27	sodium chlorite nitric acid 45 min	45% 12% 30:1 180°F	G-E	—	G	G	—	F
28	sodium chlorite nitric acid	60% 12% 30:1	G-E	—	G	G	—	E
29	sodium chlorite nitric acid 45 min	60% 24% 30:1 180°F	G-E	—	G-E	G-E	—	E
30	sodium chlorite nitric acid 45 min	90% 12% 30:1 180°F	G-E	—	G	G	—	E
31	sodium chlorite benzoic acid pH 4.4-5.0 60 min	1% ½% 30:1 180°F	G-E	—	F	F	—	E

(Continued on following page)

TABLE VI (continued)

Test No.	Method of Stripping		Dischargeable Eastman Fast Blue GLF	Dischargeable Cibacete Yellow GN	Dischargeable Celliton Scarlet BA	Dischargeable Cellanthrene Brill Blue FFS Conc	Nondischargeable Eastman Fast Yellow GLF	Nondischargeable Latyl Red B
32	sodium chlorite benzoic acid pH 4.4-5.0 60 min	1% ½% 30:1 212°F	G-E	—	F	F	—	E
33	sodium chlorite benzoic acid pH 4.6-4.9 60 min	10% 5% 30:1 180°F	G	—	F	F	—	G
34	sodium chlorite benzoic acid pH 4.9-4.9 60 min	20% 10% 30:1 180°F	E	—	F	F	—	E
35	sodium chlorite benzoic acid pH 4.3-5.0 60 min	30% 15% 30:1 180°F	G-E	—	F-G	F-G	—	E
36	sodium chlorite benzoic acid pH 4.5-5.0 60 min	50% 25% 30:1 180°F	E	—	F-G	F-G	—	E
37	sodium chlorite benzoic acid pH 5.2-5.4 60 min	65% 25% 30:1 180°F	E	—	F-G	F-G	—	E
38	sodium chlorite benzoic acid pH 5.2-5.4 60 min	80% 40% 30:1 180°F	E	—	G	G	—	E
39	sodium chlorite benzoic acid pH 4.0-4.9 30 min	180% 120% 60:1 210°F	E	E	E	E	E	E
40	sodium chlorite benzoic acid formic acid pH 3.7-3.75 60 min	100% 60% to give 30:1 180°F	E	G	F-G	G	G	E
41	sodium hypochlorite (1°Tw) 45 min	375% 30:1 100°F	P	P	P	P	F	F
42	sodium hypochlorite (1°Tw) pH-4 with acetic acid 45 min	375% 30:1 180°F	P	P	P	P	F	P
43	sodium hypochlorite (1°Tw) pH 4 with acetic acid 45 min	375% 30:1 180°F	F	G	G	G	F	G
44	bromine final pH 1.75 60 min	8% 30:1 180°F	P	P	G	P	P	F
45	bromine final pH 1.95 60 min	5.5% 30:1 210°F	P	P	G	P	P	P
46	hydrogen peroxide 25-vol pH 3.7-3.0 60 min	1200% 30:1 210°F	P	P	P	P	G	P
47	hydrogen peroxide 25-vol pH 6.0-5.4 60 min	1200% 30:1 210°F	P	G	P	P	E	P
48	hydrogen peroxide 25-vol pH 9.7-9.8 60 min	1200% 30:1 210°F	F	G	P	P	G	P
49	peracetic acid pH 2.7-2.4 60 min	20% 30:1 210°F	P	P	P	P	P	F
50	ammonium persulfate pH 7.0-1.7 60 min	10% 30:1 210°F	F	F	P	F	F	G
51	sodium perborate pH 9.8-9.5 60 min	20% 30:1 210°F	F	P	P	P	G	P
52	basic zinc sulfoxylate-formaldehyde pH 3.2-3.5 45 min *Followed by:* sodium chlorite formic acid 45 min	10% 30:1 210°F 10% 10% 30:1 210°F	F	F	G	F	E	G

(Concluded on following page)

TABLE VI (concluded)

Test No.	Method of Stripping		Dischargeable			Nondischargeable		
			Eastman Fast Blue GLF	Cibacete Yellow GN	Celliton Scarlet BA	Cellanthrene Brill Blue FFS Conc	Eastman Fast Yellow GLF	Latyl Red B
53	sodium sulf-form	5%						
	pH 3.2-3.5	30:1						
		180-212°F						
	Followed by:		P	F	F	P	G	P
	sodium bichromate	3%						
	sulfuric acid	3%						
		30:1						
	30 min	212°F						
54	basic zinc sulf form	3%						
		30:1						
	45 min	212°F						
	Followed by:		P	F	P	P	G	P
	sodium bichromate	3%						
	sulfuric acid	3%						
		30:1						
	45 min	210°F						
55	sodium hypochlorite	750%						
	(1°Tw) pH 2 with sulfuric acid		F	E	G	G	F	G
	Followed by:							
	sodium bisulfite	6%						
		30:1						
	20 min	140°F						
56	sodium hydrosulfite	10%						
	pH 7.5-11.0	30:1						
	45 min	160°F	F	F	F	F	E	G
	Followed by:							
	sodium chromate	3%						
	sulfuric acid	3%						
		30:1						
	30 min	212°F						
	Followed by:							
	sodium chlorite	10%						
	nitric acid	5%						
		30:1						
	45 min	212°F						
57	zinc hydrosulfite	6%						
	pH 5.5-7.0	30:1						
	45 min	180°F						
	Followed by:							
	sodium bichromate	3%	F	F	F	F	F	F
	sulfuric acid	3%						
		30:1						
	30 min	212°F						
	Followed by:							
	sodium chlorite	10%						
	nitric acid	5%						
		30:1						
	45 min	212°F						
58	normal zinc sulfoxylate-formaldehyde	5%						
	pH 3.2-3.5	30:1						
	45 min	212°F						
	Followed by:							
	sodium bichromate	3%	F	G	F	F	G	F
	sulfuric acid	3%						
		30:1						
	30 min	212°F						
	Followed by:							
	Textone	10%						
	nitric acid	5%						
		30:1						
	45 min	212°F						
59	basic zinc sulfoxylate-formaldehyde	5%						
	pH 3.2-3.5	30:1						
	45 min	212°F						
	Followed by:							
	sodium bichromate	3%	F	G	F	F	G	G
	acetic acid	1.5%						
		30:1						
	30 min	212°F						
	Followed by:							
	Textone	10%						
	nitric acid	5%						
		30:1						
	45 min	212°F						
60	100%-strength acetone							
	30 min	75°F						
	Followed by:		G	E	G	E	E	E
	sodium chlorite	180%						
	Quadrafos	60%						
	pH 11.0-7.2	60:1						
	60 min	212°F						
61	sodium chlorite	180%						
	Quadrafos	60%						
	pH 11.0-7.2	30:1	G	E	G	G	E	E
	60 min	212°F						
	Followed by:							
	100%-acetone							
	30 min	75°F						

Scarlet BA; and the nondischargeable types were Celanthrene Brilliant Blue FFS Conc 200%, Eastman Fast Yellow GLF and Latyl Red B. Sodium chlorite (Textone) was found to be the most effective stripping agent, but its efficiency was influenced by the particular acid used with it. Nitric and benzoic acids are particularly advantageous for this purpose.

To obtain dyed fiber on which to determine the optimum conditions for stripping Saran, unpigmented staple fibers were dyed with ½% and 2% acetate dyestuffs owf at 210° and 250°F. While dyeings made at 250°F appeared to have slightly better color value, fastness to light, washability, and especially fastness to crocking, their characteristics in stripping were essentially the same, and therefore, for simplicity, only the stripping tests made on dyeings at 210°F are reported in Table VI. The results in this table are confined to the 2% dyeings, which were the more difficult to strip.

Various stripping agents and conditions are described and evaluated in Table VI. Of these laboratory methods, No. 26 was repeated on about one pound of "Saran" staple, and a portion of this stripped fiber was redyed by the procedure originally used.

From tensile-strength data there is no indication of an appreciable change in the physical properties of "Saran" from the stripping techniques used. There is also no indication of a decrease in light fastness of dyeings made on "Saran" that has been stripped by the above mentioned procedure.

The choice of a method for stripping dyed "Saran" depends on the individual case at hand, i e, the amount and type of color to be removed, the type of equipment available, the shade to be redyed and the cost that can be borne in the individual case. While the exhibit illustrates the case of almost complete color removal, Table VI should be of considerable assistance in choosing an appropriate method when complete color removal is not necessary.

ACRILAN —— Acrilan is a modified polyacrylonitrile fiber, which may be dyed with acid, chrome or acetate dyestuffs.

The investigation of the stripping of Acrilan included the three classes of dyestuffs most commonly used to dye this fiber, namely, acid, chrome, and acetate dyes. Six dyestuffs were chosen from each class to represent dischargeable and nondischargeable types in order to include those dyes that would normally be recommended for use on Acrilan. The dyes and the methods of application used were as follows:

ACID DYES

Crocein Scarlet MOO (C I 252)
Alizarine Supra Blue A (Pr 12)
Alizarine Green CG (C I 1078)
Polar Yellow 2G (C I 642)
Cloth Fast Blue R (C I 289)
Xylene Lt Yellow 2G (C I 639)

METHOD OF APPLICATION——Enter fabric into dyebath at 180°F, raise temp to 205°F, add sulfuric acid:

2% run 5 minutes
2% run 5 minutes
2% run 10 minutes
2% run 10 minutes
2% continue 1 hour
Rinse
Scour
1% Igepon T
0.5% sodium carbonate
130°F for 15 minutes

CHROME DYES

1% Alizarine Yellow G	(C I 36)
1% Superchrome Yellow RN	(C I 197)
1% Metomega Chrome Blue 2BL	(Pr 454)
1.5% Metomega Chrome Red GM	(Pr 458)
1% Omega Chrome Brown EB	(Pr 14)
1.5% Erio Chrome Olive BL	(Pr 254)

METHOD OF APPLICATION——Enter fabric into dyebath at 250°F, run 5 minutes, add nitric acid:

1% run 5 minutes
2% run 5 minutes
2% run 5 minutes
2% run 5 minutes
3% run 5 minutes
3% run 5 minutes
3% continue 1 hour

CHROME

0.8% potassium dichromate
1% nitric acid
Enter samples at 120°F, raise temp to 205°F in 15 minutes, run 15 minutes, add 2% nitric acid and continue 1 hour

SCOUR

1% Igepon T
0.5% sodium carbonate
140°F for 10 minutes

ACETATE DYES

Eastman Blue GLF (Pr 244)
Celliton Scarlet BA (Pr 242)
Calliton Fast Yellow GA (Pr 228)
Celanthrene Brill Blue FFS (Pr 234)
Celliton Fast Pink BA
Eastman Fast Yellow GLF

METHOD OF APPLICATION——

1% dyestuff
1% Igepon T
Start at 160°F, raise temp to 205°F in 15-20 minutes, run 1½ hours at 205°F and rinse.

SCOUR

1% Igepon T
120°F for 15 minutes

The results of this investigation on Acrilan can be summed up in several simple statements.

Few of the common stripping agents are effective in the stripping of Acrilan. The best agents found were acidic Textone ($NaClO_2$) and neutralized sodium hypochlorite. For a mere reduction of shade, an alkali such as sodium carbonate at a pH of 9 to 10 is quite satisfactory.

The fact that either the acid or acetate dyestuffs are classified as dischargeable or nondischargeable on the fibers for which they were originally intended has little meaning when they are applied to "Acrilan." The reaction of the various stripping agents is, for all practical purposes, the same on both types of dyestuff.

The tensile strength of "Acrilan" stripped by these methods is only very slightly affected (approximately 5% loss).

The material may be redyed without any loss of brightness or of fastness properties.

Stripping trials were made with detergents, soap, various acid and alkaline reducing agents, oxidizing agents, dispersers, adsorbents, sequestrants and agglomerants. All of the trials were made at 200°F for one hour except in those instances in which stripping by one procedure was followed by another, or the same procedure, to determine whether more desirable results could be obtained than when either of the reagents was used alone.

Generally, those stripping agents which produced good results with one class of dye also gave comparatively good results with the other classes.

Both anionic and nonionic detergents were of little use and gave poor results in concentrations of 4% owf. Soap in a concentration of 5% owf gave fair to good stripping on acid and acetate dyes but had no effect on chrome dyes. This was also true of sodium carbonate at a bath pH of 9.5. Sequestering agents, such as Quadrafos, Calgon and Versene Fe-3, gave only a fair strip in concentrations up to 10% owf. With the exception of the combination of 5% soap and 2% sodium carbonate, which gave a fair-to-good strip of acid and acetate dyes, the addition of detergents or sequestrants to the alkali appeared to retard its action. The addition of Versene to a soap-alkali combination also had a retarding effect. Agglomerants, such as Peregal ST, did not improve the results of these combinations.

The reducing agents, both acid and alkaline, were totally ineffective on all three classes of dyestuffs. Eight per cent of sodium hydrosulfite at a starting pH of 9.8 with sodium carbonate at 160°F for 1 hour gave poor results, as did zinc hydrosulfite at pH 3.5 at 180°F for 1 hour. Additions of sequestrants or agglomerants did not improve the strip. Likewise, all of the sulfoxylate-formaldehyde compounds gave poor results. Attempts to improve their action by reductions in pH to as low as 2 with both organic and mineral acids gave no improvement. Hydrogen peroxide at pH 10 with sodium carbonate produced a good strip on acid dyes but not appreciably better than that obtained with alkali alone. At acidic pH's, no stripping was ob-

tained with peroxide. The permanganates at concentrations of 2% owf and pH values of 3 to 5 showed no tendency to remove color. Oxidizing acids, such as peracetic acid at pH values as low as 1.5, were also of no use. The addition of sequestrants and agglomerants did not improve the action of any of these compounds.

Some of the best strips obtained during this investigation were with 10% of Tetone on weight of fiber (owf) at a pH of 3.5 with acetic or formic acids. All of the acid and acetate dyestuffs used were stripped clean after 1 hour at 200°F. The chrome dyes were naturally more resistant, but still, good to excellent strips were achieved. As little as 5% of Textone under the above conditions gave good color removal of acid and acetate dyes from Acrilan. Attempts to improve the effect on chrome dyes by the addition of sequestrants and agglomerants to the stripping baths were unsuccessful. Pretreatment of the chrome-dyed fabric with alkali and sequestrants at 200°F for ½ hour before stripping or even the use of two successive stripping baths did not show any appreciable improvement over the results obtained by the single stripping procedure described above.

Just as effective as Textone on all three classes of dyestuffs was the use of a 4% solution of sodium hypochlorite (containing 5% of available chlorine), which had been back-titrated to approximate neutrality with acetic acid. This procedure when used at 200°F for 1 hour gave good to excellent stripping. Only poor to fair results were obtained at lower temperatures or at distinctly acid or alkaline pH values.

Agglomerants, such as Peregal O, Peregal ST, and Syton W-20, and adsorbents, such as carbon black, have no effect on the removal of dyes from Acrilan. Their use with soap and/or sodium carbonate did not improve the results. Of the several dispersers used, such as Dispersall VL and Lomar PW, only 2% Dispersall VL owf gave a good strip of most acid and acetate dyes. The results were comparable to that of sodium carbonate, and this should make it quite useful for the leveling of uneven to the original shades, and comparative dyeings.

Swatches of stripped fabric were redyed strength and fastness tests were made. The loss of tensile strength was found to be very slight.

Generally, stripping had no adverse effects on the light fastness of the redyed fabrics, and in some instances the fastness of the redyed fabrics was noticeably improved over the original. This is true of all three classes of dyestuffs.

CELLULOSE ACETATE —— To study the stripping of color from cellulose acetate fabric only dispersed acetate dyes were used. Other types of dyes could be employed, but they are applied by unconventional methods and are used only for special purposes and in small quantities.

A most useful and effective method for stripping color from acetate is the treatment of this cloth with large volumes of soap solution. This might be regarded as a reverse of the dyeing procedure inasmuch as equilibrium is reached between the color on the fabric and the color in the solution. It is a physical removal of dyestuff rather than chemical destruction.

The most effective conditions for this type of strip were found to consist of use of a 2% soap solution at a liquor ratio of at least 100 to 1 and of a temperature of 200°F. The length of time of treatment depends upon how much color is to be removed.

Table VII shows the results of stripping tests with some of the materials commonly employed for this purpose.

It is evident from the above table that, in the use of the sodium hydrosulfite, liquor ratio is an important factor and, at least under the conditions reported, most of the color removal is physical rather than chemical.

Tensile-strength studies on stripped and redyed acetate fabrics showed that no appreciable reduction in this property occurred under the conditions reported.

Light-fastness and atmospheric-fading tests showed that care must be exercised in selecting the stripping procedure if fastness to light or atmospheric fading is important. Table VIII shows the fastness characteristics of stripped and redyed acetate fabric dyed with Celanthrene Brilliant Blue FFS Conc and Eastman Fast Blue GLF.

NYLON——Nylon samples dyed with dispersed-acetate, acid, metalized-acid and chrome types of dyestuff were used in studying stripping on this type of fiber. The dyes were applied conventionally except in the case of the after-chromed dyes. The procedure used for the latter was to dye, chrome and then steam under pressure to effect chromation and to develop the

TABLE VII

STRIPPING ACETATE AND NYLON

Material	*Conc*	*Liquor Ratio*	*Temp °F*	*Time Hrs*	*Acetate Results*	*Nylon Results*
Sod hydrosulfite	10%	20:1	200	½	fair	poor
Sod carbonate	.1% soln					
Sod hydrosulfite	10%					
Sod carbonate	.015%	130:1	200	½	good	good
Zinc sulfoxylate	10%	50:1	200	½	good	good
Acetis acid	5%					
Textone	0.1% soln	50:1	200	½	excellent	excellent
Acetic acid	0.1% soln					
Zinc sulfoxylate	10%	50:1	200	½		
Acetic acid	5%					
Followed by:						
Textone	0.1% soln	50:1	200	½	excellent	excellent
Acetic acid	0.1% soln					
Zinc sulfoxylate	10%	50:1	200	½		
Acetic acid	5%					
Followed by:						
Sodium hypochlorite (20% Acetic acid pH3	0.5% soln	50:1	200	½	fair	fair

TABLE VIII

RATINGS OF LIGHT FASTNESS AND ATMOSPHERIC FADING FOR STRIPPED AND REDYED ACETATE

	Celanthrene Brill Blue FFS Conc.		*Eastman Fast Blue GLF*	
Stripping Method	*Light Fastness (20 hours)*	*Atmospheric Fading (1 cycle)*	*Light Fastness (20 hours)*	*Atmospheric Fading (1 cycle)*
Control	G	P	E	E
Soap—soda ash	G	F	E	E
Sodium hydrosulfite—soda ash	P	P	E	E
Zinc sulfoxylate—formaldehyde and acetic acid	P	P	E	E
Textone—acetic acid	F	P	E	F
Zinc sulfoxylate—formaldehyde and Textone	F	P	E	G
Sodium hypochlorite and acetic acid	P	P	P	E

* Editor's Note: Ratings do not correspond to Official AATCC Methods.
E—excellent
G—good
F—fair
P—poor

TABLE IX

RATINGS FOR LIGHT FASTNESS OF STRIPPED AND REDYED NYLON

	Celanthrene Brilliant Blue FFS Conc 200%	*Cloth Fast Blue R*	*Pontachrome Azure Blue BR*	*Palatine Fast Blue GGN*
Control	F	P	G	P
Soap & soda ash, 50:1	G	F	P	F
Soap & soda ash, 103:1	G	P	F	F
Sodium hydrosulfite, 20:1	F	P	P	P
Sodium hydrosulfite, 130:1	F	P	F	P
Zinc sulfoxylate-formaldehyde	F	P	F	P
Sodium hypochlorite	F	P	F	P
Textone	G	P	F	P
Zinc sulfoxylate-formaldehyde & Textone	G	P	P	F

G—good
F—fair
P—poor

color.

The stripping tests were the same as those employed with acetate fabric. Table VII shows the effect of the stripping procedures used on nylon.

The effect of physical removal of color with large volumes of soap solution is much the same on nylon as on acetate. The acetate-type dyes on nylon were easily removed by this procedure. The acid colors were sufficiently stripped that this method could be used to level uneven shades. The metalized and chrome dyes were affected only slightly by this treatment. Again, liquor ratios greater than 100:1 did not appreciably increase stripping, but the time factor was shown to be important. For example, four hours of treatment showed much improved stripping over one-half hour.

The results of light-fastness tests on stripped and redyed nylon are shown in Table IX.

X-51——Fabric produced from the acrylic fiber X-51 was dyed with the following dyestuffs at 2% concentration:

Calcocid Alizarine Blue SBA
Calcocid Scarlet Moon
Calcofast Wool Blue 2G
Calcofast Wool Red GA
Calcochrome Blue Black BC
Calcosyn Pink B Double

DYEING PROCEDURES —— All pieces were scoured with 3% soap, ½% soda ash, and 2% Aerosol OT 25% at 140°F for 20 minutes. All but the Calcosyn dyeings were pretreated with 5% Aerosol SE, 2% NaOH (30°Bé), run for 20 minutes at 160°F, rinsed well and dried.

Acid Dyeing

3% acetic acid, 28%, boil ½ hr
3% acetic acid, 1% copper sulfate, boil ½ hr, rinse

Calcofast Dyeing

4% sulfuric acid, boil ½ hr
3% acetic acid, 1% copper sulfate, boil ½ hr, rinse

Chrome Dyeing

5% ammonium acetate, boil ½ hr
3% acetic acid, 1% copper sulfate, boil ½ hr
6% acetic acid 28%, 2% chrome, boil ½ hr, rinse

Calcosyn Dyeing

2% color, boil 1 hr, rinse

Stripping Method

10% Textone
10% Quadrafos
10% acetic acid, glacial
Boil ½ hr, rinse well

Bleach

1.4 g/l sodium hypochlorite
20 minutes at 170°F
Rinse well and dry

The above procedure left the goods in satisfactory condition for redyeing. The Calcofast Wool Blue 2G stripped most readily and left the fabric whiter than the original fabric before dyeing. The Wool Red GA, Blue SBA and Pink B Double stripped to a pale pink. The Scarlet Moon stripped to a straw yellow, and the chrome Blue Black stripped to a pale khaki shade. All stripped pieces were noticeably improved by an after-treatment (bleach) with hypochlorite.

Upon redyeing the stripped pieces, a definite difference in shade and/or strength was noted on all but the Calcosyn dyeing. We believe this to be due to the additional pretreatment received by these pieces before redyeing with the acid, metalized and chrome dyes. Apparently, some of the Aerosol SE originally applied before the initial dyeing remains even after stripping and bleaching. This residual Aerosol SE plus the new amount added probably accounts for the differences in shade and/or strength noted on these redyed pieces. The redyed Calcosyn shade is essentially the same as the original dyeing before stripping and bleaching. This dyeing received no treatment with Aerosol SE.

The following changes were noted upon redyeing:

Calcocid Alizarine Blue SBA — much duller, slightly heavier
Calcocid Scarlet Moon — much duller, yellower, slightly heavier
Calcofast Wool Red GA — considerably redder
Calcofast Wool Blue 2G — duller, yellower
Calcochrome Blue Black BC — much duller, black
Calcosyn Pink B Double — unchanged

The tensile strength and the wash fastness properties of the stripped and redyed samples did not show an appreciable difference from the original dyed fabrics.

SUMMARY

TYPE-41 ORLON——The most effective procedure was found to be with 10% sodium chlorite at the boil adjusted to a pH of 3 to 4 with nitric acid. Stripping with sodium chlorite did not affect the fastness test of the redyed samples.

TYPE-81 ORLON——The only excellent strips were obtained by using acidified 5% sodium chlorite. Reasonably good color removal was obtained with 30-50% sodium chloride.

DACRON——This fiber is most successfully stripped with a two-bath procedure consisting of acid sulfoxylateformaldehyde followed by sodium hypochlorite or sodium chlorite. A stable carrier, such as monochlorobenzene or benzoic acid, increases the efficiency of the strip with sodium hypochlorite and sodium chlorite.

DYNEL——Sodium chlorite with either nitric acid or a quaternary ammonium compound proved to be the most efficient stripping agent.

Swelling agents were effective in stripping both acetate and acid dyes.

SARAN——This fiber was most effectively stripped by treatment with sodium chlorite in the presence of nitric or benzoic acids.

ACRILAN —— Neutral sodium hypochlorite was an efficient stripping agent for this fiber.

CELLULOSE ACETATE —— Treatment with a large volume of soap solution proved to be a simple and effective procedure for stripping dispersed acetate colors.

NYLON——The use of a large volume of soap solution was effective on dispersed acetate colors and ordinary acid colors. A two-bath treatment, zinc sulfoxylateformaldehyde followed by sodium chlorite, proved to be the most effective general strip.

X-51——A treatment with sodium chlorite was found to constitute a satisfactory stripping procedure.

CONCLUSION

An exhaustive study of the stripping of color from the hydrophobic fibers revealed that two basically simple procedures were found to be most effective:

1) Physical removal of color by use of large volumes of dilute soap solutions.

2) Chemical removal of color by use of sodium chlorite.

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(71) Whattman, "Dyeing of Nylon," *Canadian Textile J* 57, No 12, 36,48 (1940).

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(75) "Stripping Colored Materials Colored by Pigments & Proteins," *Brit P* 468, 154 (1937).
(76) I G Farben, "Textile Assistants," *Brit P* 482,367 (1938).
(77) "Amides," *Brit P* 483,324 (1938).
(78) "Dyeing with or Discharging Vat Dyes," *Fr P* 778,833 (1935).
(79) "Discharging Dyes from Textiles," *Fr P* 45,804 (1935). Addn to *Brit P* 436,076 (Dunbar, Evans & Laurie).
(80) "Dyeing and Removing Dyes," *Fr P* 822,739 (1938).
(81) I G Farben, "Removing Dyes from Acetate Rayon," *Fr P* 847,149 (1939).
(82) "Stripping Wool," *Ger P* 601,103 (1934).
(83) "Stripping Dyed Textiles," *Ger P* 632,066 (1936); *Brit P* 422,466.
(84) Soc Pour L'nd, Chim A Bale, "Removing Dyes," *Ger P* 636,626, (1936).
(85) Stripping Dyed Textiles," *Ger P* 652,347 (1937); *Brit P* 436,076.
(86) Soc Pour Ind Chim A Bale, "Dyeing and Stripping Textiles," *Ger P* 678,131 (1939).
(87) "Stripping Dyes Made of Water-insoluble Azo Compounds," *Ger P* 701,845 (1940).
(88) Geigy-A-G, "A Quaternary Nitrogen Compound," *Swiss P* 211,790, (1941); Addn to *Swiss P* 200,669.
(89) "A Quaternary Nitrogen Cmpd," *Swiss P* 211,791 (1941); Addn to *Swiss P* 200,669.
(90) "A Quaternary Nitrogen Cmpd," *Swiss P* 211,792.
(91) Geigy A G, "Stripping in Vat Dyeing," *Swiss P* 214,610 (1941).
(92) Geigy A G, "Stripping Vats," *Swiss P* 217,128 (1942).
(93) "Acylbiguanides," *Swiss P* 225,155 (1943).
(94) "High-Molecular-Weight Water-Soluble Acylbiguanides," *Swiss P* 232,277.
(95) "High-Molecular-Weight Acylbiguanides," *Swiss P* 240,353, 240,355, 235,190.
(96) "Stripping Aid," *Swiss P* 244,766.

Entrance to the Fairleigh Dickinson College Campus and the Hesslein Building

New York Section to Meet for 2nd Time at Fairleigh Dickinson College

THE next meeting of the New York Section will be held jointly with the Student Chapter at Fairleigh Dickinson College, Rutherford, New Jersey, on April 17th. Dinner will be served at 7 pm and the meeting will start at 8:15.

An opportunity for those who wish to visit the college buildings will be available before the dinner and a reception committee of student members will serve as guides.

A paper "Fastness Properties of Curable Resins on Acetate Dyeings" by James Polito, Robert Zecker and Charles Cox, students at the college, will be presented by Mr Polito. Samples of treated fabrics will be exhibited. C L Zimmerman, Research Chemist, Calco Chemical Division, American Cyanamid Company, will discuss high-temperature dyeing.

The College Glee Club will present several selections during dinner and the meeting will conclude with community singing.

The program was arranged by a committee consisting of Herbert R Mauersberger, Director of the Textile Deparment of the College, Felix L Bume, P J Wood, Carl H Brubaker and Herman P Baumann.

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Personnel of Definitions Committee Announced

GEORGE H HOTTE, A M Tenney Associates, Chairman of the newly formed Definitions Committee, which will seek to clarify terms used in the wet processing industry, has announced that the following members will serve with him:

G H Hotte

George S Buck, National Cotton Council of America

Larus R Burgess, Cone Mills, Inc

Walter J Hamburger, Fabric Research Laboratories, Inc

Giles S Hopkins, The Wool Bureau, Inc

Richard D Wells, Bates Mfg Co

Arthur G Scroggie, E I du Pont de Nemours & Co, Inc

The American Society for Testing Materials will cooperate as a nonmember.

Mr Hotte has tentatively defined the scope of the committee thusly: "The definitions of terms relating to the dyeing and finishing of textiles, and terms concerned with standard test methods. "Proposals for the first order of business include 1) review of ASTM's Committee D-13 definitions that fall within the scope of this operation; 2) contact of all AATCC Research Committee chairmen to determine if they wish to submit terms needing clarification and defining; 3) review of terms that have been proposed by the Textile Institute and, possibly, the Society of Dyers and Colourists; 4) review of terms already defined by other organizations (national or international) or suggested by industry.

Membership Applications

February 27, 1953

SENIOR

Thomas G Ahern—Pres & Treas, Ahern Textile Print, Inc, Norwich, Conn. Sponsors: H V Morrell, J A Davies

Leon Bigio—Textile Dyer & Finisher, Fabritex Ltd, Colombia. Sponsors: J V Moore, O M Lea

Margaret M Boyle—Instructor in textiles, Colorado A & M College, Ft Collins, Colo. Sponsors: L Billings, A J Carbone

Herbert R Brewster—Lab Tech Assist, Collins & Aikman Corp, Philadelphia, Pa. Sponsors: J M Healey, J W Rogenmuser

Thomas D Bruce—Asst Supt, M T Stevens Southern Div, Dublin, Ga. Sponsors: I D Henry, A K Haynes

Eugene Brupbacher — Chemist-Salesman, Waywell Chem Corp, Fair Lawn, N J. Sponsors: H E Abbott, F H Buck, Jr

William M Campbell—Foreman of dyeing, Pacific Textile Processing Co, Hermosa Beach, Calif. Sponsors: F H Haselhorst, M Kramer

Samuel Carson—Owner, Plant Supt, Concord Dyeing & Finishing Co, New York, N Y. Sponsors: D G Zachary, A W Visocki

Walter Carter—Textile Technologist, McCampbell & Co, New York, N Y. Sponsors: A Malick, T J McDonald

Raymond J Cote—Boss Dyer, Steinfeld Fabrics, Newburgh, N Y. Sponsors: E H Staab, C A Funke

Almer E Crowell—Asst Dyer, Valley Lace Co, Inc, Hope, R I. Sponsors: I Proulx, H Goerner

Alexander M Cruickshank—Instructor of Chemistry, Univ of R I, Kingston, R I, and Univ of Mass, Amherst, Mass. Sponsors: W G Parks, R W Jacoby

Jan Dabrowski—Textile Chemist, E F Drew & Co, Inc, Boonton, N J. Sponsors: V K Babayan, L W Davis

Donald E Dare—Vice Pres, Champion Packaged Prod, Inc, Chicago, Ill. Sponsors: E J Sindt, D Anderson

Agnes E Davis—Textile research, Harris Research Labs, Washington, D C. Sponsors, A M Sookne, L R Mizell

Melvin H Diem—Vice Pres, The Keratene Co, Inc, Winsted, Conn. Sponsors: A G Tew, R C Geering

Thomas J Donovan—Colorist, Lisbon Textile Prints Inc, Jewett City, Conn. Sponsor: H V Morrell

John W Durnan—Superintendent, Ahern Textile Print, Inc, Norwich, Conn. Sponsors: H V Morrell, B B Meady

Daniel I Epstein—Chemist, Borne, Scrymser Co, Elizabeth, N J. Sponsors: R G Keppler, L D Barta

Robert D Evans—Research chemist—synthetic fibers & polymers—American Cyanamid Co, Stamford, Conn. Sponsors: A S Nyquist, A Cresswell

Charles A Fetscher—Head, Chemical Research Section, Res & Dev Dept, Cluett, Peabody & Co, Inc, Troy, N Y. Sponsors: H C Donaldson Jr, J W Merrill

Philip F Finch—Research & development, Vanity Fair Mills, Inc, Reading, Pa. Sponsors: O W Howe, C W McGowin

Irwin Finkelstein—Asst Treas and Gen'l Mgr, World Dyeing & Finishing Co, New York, N Y. Sponsors: C A Whitehead, N A Johnson

Jaroslav S Fryml—Manager, Montreal Fast Print Limited, Montreal, Canada. Sponsors: R W Redston, F J Knight

Rene Genet—Chem Eng, United Merchants Labs, Inc, New York, N Y. Sponsors: E F Landau, T G Hawley

Willard S Gilbert—Salesman, Stein, Hall & Co, Inc, Charlotte, N C. Sponsors: E C Atwell, D E Truax

Moises Haimchick—Textile chemistry & printing, Tevidos Leticna Ltds, Colombia. Sponsors: H Schwarz, R Jaramillo

Margaret R Hallinan—Research Chemist, National Aniline Div, Allied Chemical & Dye Corp, Buffalo, N Y. Sponsors: B L Woolley, W H Leyking

Edward L Hankins—Overseer of printing, Fulton Bag & Cotton Mills, Atlanta, Ga. Sponsors: W P Addison, W F Gerrow, Jr

Elizabeth S Herbert—Household Equipment Editor, *McCall's*, New York, N Y. Sponsors: M A Falcone, E B Cook

Willard A Holton—Finishing Dept Foreman, Muscogee Mfg Co, Columbus, Ga. Sponsors: J M Buckner, J S Mitchell

R G Jaffe—Spectrophotometrist, Crown Zellerbach Corp, Camas, Wash. Sponsors: W C Marshall, O E Schmidt

David E Johnson — Chemist, Berkshire Knitting Mills, Reading, Pa. Sponsors: H L DeTurck, M H Klein

Donald C Johnson — Manager, Dublin Woolen Mills, J P Stevens & Co, Inc, Dublin, Ga. Sponsors: L D Henry, A K Haynes

Paul Kaplan—Mgr of Development Dept, Stein Hall & Co, Inc, New York, N Y. Sponsors: L F Costello, A R Robbins

Elbert L Kaufman—Director of Research & Development, Stearns & Foster Co, Cincinnati, O. Sponsors: A F Mayer, H J Krantz

Samuel A Kaufman—Dry Cleaning Mgr, Wallach Laundry Inc, New York, N Y. Sponsors: E B Michaels, S Machlis

James L Keen—Overseer, Final Inspection, M T Stevens Southern Div, J P Stevens Co, Dublin Woolen Mills, Dublin, Ga. Sponsors: K D Henry, G W Spicer

Beverly M Keever—Purchasing Agent, J P Stevens & Co, Inc, Greensboro, N C. Sponsors: W A Wardell, O Grosz.

Ray R Krammes — Microscopist, Calco Chemical Div, American Cyanamid Co, Bound Brook, N J. Sponsors: K H Barnard, G L Royer

John F Krasny—Research Associate, Harris Research Labs, Washington, D C. Sponsors: A M Sookne, L R Mizell

Ernest J Laestch—Asst Vice-Pres, Consulting-Advising Textile Engineer, The Bell Company, Worcester, Mass. Sponsors: G Tanguay, F J Schey, Jr

L Franklin Leighton, Jr—Sales, Keratene Co, Winsted, Conn. Sponsors: A G Tew, R C Geering

Daniel H Lipman—Vice-Pres & Sales Mgr, Stein Hall & Co, Inc, New York, N Y. Sponsors: A R Robbins, L F Costello

Arnold Listrani—Dyer, Chem Tex Corp, Reading, Pa. Sponsors: L W Meyer, J W MacNeil

W Sanford Lowery—Assistant Dyer, Dixie Mercerizing Co, Chattanooga, Tenn. Sponsors: O T Lankford, W G Agnew

Cesar Manevich—Textile Chemist, Tejidos Leticia, Medellin, Colombia. Sponsors: H Schwarz, R Jaramillo

Graham D Mangum, Jr—Textile Engineer, National Cotton Council, Washington, D C. Sponsors: G H Dockray, G S Buck, Jr

Peter Marston — Chief Chemist, Anders Chemical Corp, East Rutherford, N J. Sponsor: A Olze

Angel F Martegani—Manager, Anilinas Uruguayas S A, Montevideo, Uruguay. Sponsors: G E Neissner, L Fusser

Charles P McCann, Sr—Supervisor, Pacific Textile Processing Co, Hermosa Beach, Calif. Sponsors: F H Haselhorst, M Kramer

John Moore — Plant Chemist, Lincoln Bleachery Div, Lonsdale, R I. Sponsors: F Kornacke, W T Darby

Curt Nassau—Vice-Pres in charge of production, weaving, dyeing & finishing, Hill, Brown Corp, Clifton, N J. Sponsors: G H Kenyon, G Heine

Peter Olenkiewicz—Color Mixer, Foreman & Colorist, Ahern Textile Print, Inc, Norwich, Conn. Sponsors: H V Morrell, B B Meady

Andrew Phillips—Dyestuffs distribution & manufacture, Fine Dyestuffs & Chemicals Ltd, Manchester, England. Sponsors: G G Beisser, C Z Draves

Joseph H Pistone—Dyer, Up-to-Date Yarn Dyeing Co, Brooklyn, N Y. Sponsors: L Wolf, P J Luck

Charles R Powell—Salesman, Diamond Alkali Co, Cincinnati, O. Sponsors: A P Roy, F Kiviat

Cornelius S Reilly—Supt, Dorlexa Dye & Finishing Co, Woonsocket, R I. Sponsors: G Tanguay, P A Tapis

Grant C Rickard—Chemical Sales, Southern Sizing Co, East Point, Ga. Sponsors: J W Swiney, C R Gill

Charles A Robinson—Research Chemist, Arnold Hoffman & Co, Inc, Providence, R I. Sponsors: W T Clarke, J A Davies

Edwin A Robinson—Vice-Pres & Technical Dir, Nopco Chem Co, Harrison, N J.

Herman A Sayles—Plant Manager, Cedartown Textiles Inc, Cedartown, Ga. Sponsors: H W Berry, N Johnston

David Shieldkret—Textile Engineer, United Merchants Labs, Inc, New York, N Y. Sponsors: T G Hawley, E F Landau

Leonard Smith—Dir of Utilization Research, National Cotton Council of America, Inc, Washington, D C. Sponsors: G S Buck, Jr, G H Dockray

John A Smyth—Dyeing & Finishing Dept, Production and Quality Control, Dublin Woolen Mills—M T Stevens Southern, Dublin, Ga. Sponsors: L R Henry, G W Spicer

James M Stephenson—Assistant Overseer of Dyeing, Dublin Woolen Mills, Dublin, Ga. Sponsors: G W Spicer, L R Henry

Robert E Steward—Lab Technician, General Dyestuff Corp, Providence, R I. Sponsors: F L Moses, E C Collins

Howard L Thomas — Overseer Dyeing, Dublin Woolen Mill, Dublin, Ga. Sponsors: L R Henry, A K Haynes

Leslie Thompson — Dyer, Sub-Manager Bleaching & Dyeing, Canadian Spool Cotton Co, Montreal, Canada. Sponsors: J M Loebel, F J Knight

Tully T Venturini—Head Dyer, Super Dyers, Long Island City, N Y. Sponsors: H P Baumann, L J Dogin

Dan G Waller—Salesman & Technical Representative, Mac Chemical Co, Knoxville, Tenn. Sponsors: W S McNab, J Z McNab

Alan Waterworth — Finisher, Burlington Mills Corp, Dublin, Va. Sponsors: F Stubbings, W C Stewart

J Gordon Waywell — Technical Sales (weaving-chemical), Waywell Chem Corp, Fair Lawn, N J. Sponsors: H E Abbott, F H Buck, Jr

Samuel A Wilson—Textile Chemist & Colorist, Wilson Organic Chemicals Inc, Sayreville, N J. Sponsors: G P Viegelmann, M Previti

Frederick L Young—Research, Textile Consultant, Hickory, N C. Sponsors: G K Byers, T H Walker

Johan Zonnenberg—Textile Engineer & demonstrator, W A Scholken's Chem Wks, Holland. Sponsors: C Z Weber, M Keller

JUNIOR

Jesus L Ang—Supt of Mill, Premier Knitting Mills, Rizal, Philippines. Sponsors: C A Sylvester, H F Fischer

Ralph J Chamberlain, Jr—Chemist, American Cyanamid Co, Sanford, Conn. Sponsors: N J Glade, W H Horne

James D Compton—Sample Dyer & Finisher, Fairforest Finishing Co, Spartanburg, S C. Sponsors: J C King, R C Richardson

Leonard C Connors—Laboratory Mgr, Arnold, Hoffman & Co, Inc, Charlotte, N C. Sponsors: D L Turner, A H Noble, Jr

Gamal E Cordahi—Asst in the Research Lab, Ciba Co, New York, N Y. Sponsors: E P Ward, S V Vaniotis

Billie A Ginin—Research Asst, Chemstrand Corp, Decatur, Ala. Sponsors: F B Lutz, S J Davis

Gerard W King, Jr—Chemist, Geigy Company, Inc, Charlotte, N C. Sponsors: J H Troutman, R G Haislip, Jr

Jerome Lentz—Junior Textile Colorist, American Aniline Products, Inc, New York, N Y. Sponsors: W D Baird, F F Kraft

Samuel J Martin, Jr—Dyestuff Salesman, American Aniline Products, Inc, Chattanooga, Tenn. Sponsors: J T Bohannon, Jr, T Headrick

Robert H Meadows—Overseer of Finishing, Dan River Mills, Inc, Danville, Va. Sponsors: J W Sutton, E H Wells

Richard S Sappington—Asst Finisher, Dublin Woolen Mills, Dublin, Ga. Sponsors: L R Henry, A K Haynes

ASSOCIATE

Bernardo R Arbelaez—General Mgr, Industrial Suppliers Inc, Colombia

Milton Brawer—Vice-Pres, Holyoke Mills Co (Potomac Dyeing & Fin Div), Hagerstown, Md.

Oscar I Brawer—President, Holyoke Mills Co (Potomac Dyeing & Fin Div), Hagerstown, Md.

Albert R Breen—Agent representing Gaston County Dyeing Machine Co & Riggs & Lombard Inc, Chicago, Ill.

Thomas P Brown—Vice-Pres, Reichold Chemicals, Inc, New York, N Y.

Ralph Chamberlain—Lab Tech, Portland Woolen Mills Inc, Portland, Ore.

Jerome T Coe—Sales Development Mgr, General Electric Co, Silicone Prod Dept, Waterford, N Y.

Allan J Copeland—Exec Sec, Garment Dyers Guild of America, Chicago, Ill.

Owen K Degler—Head of Research & Testing Lab, Berkshire Knitting Mills, Reading, Pa.

Harry F Kranstover—Secy, Kran-Mer Corp, Milwaukee, Wis.

Edwin W Lard—Chemist, Chemstrand Corp, Decatur, Ala.

Raymond H Mattson—Market Development, Jefferson Chemical Co, Inc, New York, N Y.

John D Nantz—Coleman & Bell Co, Inc, Norwood, O.

L del Peso—Oleos, S A, Importers, Havana, Cuba.

Hoyt C Peppers—Finishing Room Overseer, M T Stevens Southern, Dublin, Ga.

Lawrence J Riley III—Sales, Ultra Chemical Works, Inc, Paterson, N J.

James F Ryan—Sales, Ultra Chemical Works Inc, Paterson, N J.

Julio Vales—Consultant, Montevideo, Uruguay.

Julian L Vermeire—Asst Foreman, Portland Woolen Mills, Portland, Ore.

STUDENT

William C Howard—Clemson College. Sponsor: J Lindsay, Jr

Ralph A Jackson, Jr—Clemson College. Sponsor: J Lindsay, Jr

William L Mathias—Clemson College. Sponsor: J Lindsay, Jr

Joe F Mattison—Clemson College. Sponsor: J Lindsay, Jr

William O Stone, Jr—Clemson College. Sponsor: J Lindsay, Jr

Enid J Lopez—Philadelphia Textile Institute. Sponsor: W H Hughes

Sanford I Ruden—Philadelphia Textile Institute. Sponsor: W H Hughes

Harry Haralampopoulos—Lowell Textile Institute. Sponsor: E E Fickett

J Van Boyles, Jr—N C State College. Sponsor: H A Rutherford

William J Crummar—N C State College. Sponsor: H A Rutherford

Benjamin N Freshwater—N C State College. Sponsor: H A Rutherford

Charles B Park—N C State College. Sponsor: H A Rutherford

Forrest F Schrum—N C State College. Sponsor: H A Rutherford

James F Scull—N C State College. Sponsor: H A Rutherford

Dev R Sharma—N C State College. Sponsor: H A Rutherford

James K Skelly—Mass Institute of Technology. Sponsor: E R Schmarz

Roany B Thomas—N C State College. Sponsor: H A Rutherford

CORPORATE

Portland Woolen Corp, United States Rubber Co.

APPLICATIONS FOR TRANSFER TO SENIOR MEMBERSHIP

Edwin B Armstrong, Otto Davids, Eugene Eckert, Hugh K Goerner, Edwin J Greene, Robert P Lehman, William H Payne, J Jack Weiss, Joseph M Welsh, Homer B Wolfe, Daniel L Worth.

ONE HUNDRED AND EIGHTY-FIFTH COUNCIL MEETING

January 16, 1953
Hotel Commodore, New York, N Y

THE Council held its 185th meeting in the Hotel Commodore, New York, N Y, on Friday morning, January 16, 1953. Present were President J Robert Bonnar, presiding; Arthur T Brainerd, Arthur W Etchells, Samuel L Hayes and George O Linberg, Vice Presidents; Albert E Sampson, *Assistant Treasurer;* Charles W Dorn, *Chairman of the Research Committee;* Willim H Cady, Carl Z Draves, C Norris Rabold and P J Wood, *Past Presidents;* Edward B Bell, Elmer E Fickett, Frank J O'Neil and Sawyer F Sylvester representing Northern New England; Raymond W Jacoby, Thorwald Larson, Edward W Lawrence and Alden D Nute representing Rhode Island; Raymond J Carey representing Western New England; Albert E Herrmann, Jr representing Hudson-Mohawk; Carl H Brubaker, Herman E Hager, Patrick J Kennedy, James J Marshall and Henry L Young representing New York; Carleton T Anderson, Ange E Raimo, Ernest E Rettberg, Jr and S Graeme Turnbull, Jr representing Philadelphia; Walter M Scott representing Washington; Joseph Lindsay, Jr, Linton C Reynolds, Raphael E Rupp, and R Hobart Souther representing Piedmont; Glenn R Bellamy representing South Central; Eric W Camp, Joseph H Jones and Samuel Klein representing Mid-West; Kenneth H Barnard of the Committee on Conventions; George L Baxter of the Corporate Membership Committee; William A Holst, Jr of the Committee on Constitution and Bylaws; Leonard S Little of the Executive Committee on Research; George H Schuler and Glenn D Jackson Jr of the Publicity Committee; Harold W Steigler, Research Director; Percival Theel of the Publications Committee; and Harold C Chapin, *Secretary.*

The Secretary's report of the 184th Council meeting and financial report of December 30th, 1952, and the Treasurer's report of January 5th, were accepted. Albert E Sampson was reappointed Assistant Treasurer of the Association. Kirk P Ferguson was appointed Convention Treasurer.

Committees were appointed, or stand, as follows:

Executive Committee on Research

L S Little, *Chairman;* W D Appel, H Y Jennings, J R Bonnar, C N Rabold, J N Dalton, W M Scott, C W Dorn, J A Woodruff, R W Jacoby.

General Research Committee

C W Dorn, *Chairman.* Others as previously.

Publicity

G H Schuler, *Chairman;* G D Jackson, *Vice-Chairman.* Others on subsequent recommendations of Sections.

Appropriations

W R Moorhouse, *Chairman;* H C Chapin, C Z Draves, P J Wood, T R Smith.

Membership and Local Sections

A W Etchells, *Chairman;* A T Brainerd, H C Chapin, G O Linberg, S L Hayes.

Corporate Memberships

G L Baxter, *Chairman;* A E Johnson, *Vice-Chairman.* Others on subsequent recommendations of Sections.

Constitution and Bylaws

H C Chapin, *Chairman;* W A Holst, Jr, P Theel.

Technical Supplies

C W Dorn, *Chairman;* J R Bonnar, H C Chapin, W R Moorhouse, H W Stiegler.

Publications

P Theel, *Chairman;* W H Cady, *Editor, "Technical Manual and Year Book";* C Z Draves, *Editor, "Proceedings";* H C Chapin, P J Luck, R W Jacoby, G H Schuler, J R Bonnar, H Y Jennings, N A Johnson.

Colour Index Editing

W H Cady, *Chairman;* W D Appel, E R Laughlin, J R Bonnar, W A Holst, Jr, A L Peiker, R W Jacoby.

Colour Index Marketing

A E Sampson, *Chairman;* W H Cady, W R Moorhouse, H C Chapin, C W Dorn, P Theel, G D Jackson, Jr, R W Jacoby.

Conventions

K H Barnard, *Chairman;* E W Camp, C R Gill, W F Fancourt, III, J H Jones, S L Hayes, P J Kennedy, R W Jacoby, G O Linberg.

Technical Programs

E Morrill, *Chairman.* Others to be appointed.

Intersectional Contest

F J O'Neil, *Chairman.* Others to be appointed.

Student Contest

A T Brainerd, *Chairman;* A W Etchells, G O Linberg, M M McCann.

Student Awards

J Lindsay, Jr, *Chairman;* H C Chapin, T R Smith, P Theel, G H Wood, P J Wood.

New Personnel

P J Wood, *Chairman;* W D Appel, J A Woodruff, H C Chapin, W R Moorhouse, H L Young, A E Sampson.

President's Advisory Committee

S L Hayes, *Chairman.* Others to be appointed.

EXECUTIVE COMMITTEE ON RESEARCH

Mr Little announced that the next meeting of the Executive Committee on Research and various research committee representatives was to be held in New York on March 12. Though not AATCC-sponsored, flammability legislation based on the Association's test has passed the United States Senate (and, on January 16th, was before the House of Representatives). Mr Bonnar's committee is planning a program of cooperation with military authorities on dyeing formulas for uniforms. Plans are under way for manufacture of another supply of light-fastness standards. Mr Monego is working on gray scales for small color differences. The Association is interested in an American Standards Association project for helping the American Hotel Association on standards for supplies. A Committee has been organized to plan Association research at the Philadelphia Textile Institute. In the Lowell laboratories E P Johnstone has been made Technical Manager and G R Thompson, Administration Manager, under Dr Stiegler. The American Viscose Company scholarship has again been awarded, and the recipient is at work on a project. Glenn Jackson is working on regular news releases from Lowell.

CORPORATE MEMBERSHIP

Mr Baxter reported that the Corporate Membership Committee was still striving for a thirty-three per cent increase in income for research, with some favorable results, especially from New York. He also announced progress toward giving better information to his Committee on matters useful to their effort. Councilors from Sections and Vice Presidents were asked to cooperate in carrying news of Association affairs to the Sections.

PUBLICATIONS

For the Publications Committee, Professor Theel reported that papers from the Boston Convention had been published as fast as the Editor of Proceedings could edit them. In the coming *Year Book,* Acetate

Colors will still be so classified, despite their other uses, but it was indicated that a new name might be necessary eventually. Fluorescent whites will be classified as dyes. Domestic prototypes of all dyes listed will hereafter be included with the foreign. The pamphlet on *Dyehouse Mathematics* will soon go to the printer, and will probably be bound in hard paper covers to sell at a moderate price. Galley proofs for the Vat Dyeing monograph are almost ready.

PUBLICITY

Mr Schuler stated that the price on the Vat Dyeing monograph had not yet been set, despite publicity from unknown sources. He also stated that better publicity for the technical program of the Boston Convention had resulted from earlier receipt of papers.

COLOUR INDEX

Mr Cady reported that printing of the Colour Index had started. A committee headed by A E Sampson was appointed to plan for its marketing. It was voted that the Association approve the prepayment plan of the Society of Dyers and Colourists, under the conditions that a similar prepayment plan will be initiated by the Association with payments based upon the official rate of exchange prevailing at the time payments are made and with the understanding that prepayment customers of the Association will be protected against a variation in the official rate of exchange.

CONVENTIONS

Mr Linberg reported a 1952 convention registration of 1625 and a highly satisfactory financial outcome. The thanks of the Council were voted to Mr Linberg and his committee. Mr Barnard asked and received approval of the dates of September 15 to 18 for the Convention of 1954 in the Atlanta Biltmore. Mr Camp outlined the program for the Chicago Convention on September 17 to 19 of this year. He and Mr Klein reported ample space in the Conrad-Hilton for meetings, exhibits and accommodation of guests.

PERKIN CENTENNIAL

It was voted that a committee be appointed to investigate the possibility of sponsoring a Perkin Centennial Celebration in 1956, which would include the Annual Convention of the Association and meetings of other interested professional organizations. This committee was asked to report at the next Council meeting, so that a decision can be reached as to how such a celebration can be planned and conducted. R W Jacoby was appointed Chairman.

NEW PERSONNEL

For the Committee on New Personnel, Mr Wood reported the investigation of three other organizations similar to our own, but made no recommendations.

MEMBERSHIP AND LOCAL SECTIONS

As outgoing Chairman of the Committee on Membership and Local Sections, Mr Jacoby presented a petition for organization of a Student Chapter at the Rhode Island School of Design. Permission was granted. Representing the new Washington Section as Councilor, Dr Scott reported on the Section's other officers and plans. Geographical limits for the Section were left to the decision of the Membership Committee.

Elected to Corporate membership were:

Anders Chemical Co, Concord Dyeing & Finishing Co, Inc, H & N Chemical Co, Kelco Co, A H Mathieu Co, New England Chemical Supply Corp, North Carolina State College, Pittsburgh Coke & Chemical Co, Polymer Industries, Inc, Puritan Piece Dye Works, Royal Yarn Dyeing Corp, George E Sherman Co, Inc, Synthron, Inc.

Each of the following was elected to the class of membership indicated:

SENIOR

D E Adams, J C Alexander, J M Andrews, V C Angel, G Barber, C P Barth, R Bates, H C Beasley, W L Beaumont, R D Bennett, N M Bigelow, W D Blackman, Jr, E Bogossian, A G Boyes, J V Boyle, R H Bresnan, H H Buckley, S A Campellone, R C Carr, F O Chase, Jr, S Cohen, P M Cole, C G Cook, A B Craig, J Crane, M F Crown, J H Davids, S O Davis, B P Devins, W Dietrich, E Eckert, M F Eggenschiller, R J Ellis, W R Fiske, J I Gordon, G W Green, R A Greene, T H Guion, L Gussman, H P Hall, C Hancock, J R Harris, D A Henry, C F Hoffman, Jr, D W Hookom, W H Howard, S H Huffstetler, C E Hutz, R P Huxsel, Kaichi Ichii, E A Johanson, N E Johnson, J W Jordan, J F Kahl, W F Kennedy, E LeBrun, H Lilienheim, H P Lloyd, R Lorenzana, O J Lutness, H W Mackinney, C P Mangion, J C Martin, F E Mask, F Meidinger, T K Merz, H S Miller, V P Mulchrone, A Neel, J P Niederhauser, S Nomura, J Pearlman, D A Pearson, R C Pickens, C H Pillsbury, Jr, W J Politi, S Potash, K M Prytherch, J W Ramsden, R J Rendleman, H R Rocheleau, J Rondeau, H Rosenstein, G Rosset, B Salkeld, J E Sampson, J G Scherf, A Scott, J J Seyer, E D Smith, R S Spencer, J T Steinbuhler, D E Terry, M N Terry, G H Tilsner, K B Timm, H Unwin, A Weiss, M L Wetzel, W Willemsen, B E Wilsey.

JUNIOR

C G Berrier, L Breidenbach, Jr, B M Callaway, R H Carlson, R J Cicione, R J Coskren, F H Dumproff, G W Eigermann, A M Erwin, M Gori, L B Hallows, J J Iannarone, E Innocenti, J P Licciardi, H F Mahoney, K A Mitchell, A J Owens, W M Rutten, E J Stavrakas, J M Summers, E E Vuono, J B Winkler.

ASSOCIATE

S Ackerman, J W Berg, C F Bergauer, I L Blanchard, E Brandon, C E Cain, J B Curley, O Davids, J G Diaz, J J Dwyer, R B Fehr, B A Gale, A J Goldberg, R Goldsmith, E Isenberg, C F Kloss, W J Loughran, Jr, S B Mecca, W J Mooney, J E Myrick, E G Nathan, E O Norvell, G C Peabody, T A Rosenthal, A J Stern, J E Watt, C E Zackrison.

STUDENTS

E H Benz, B E Berg, N Berman, M O Blum, V T Bonavita, G H Brown, J W Burnette, G Catherines, F W Crossley, C M Dietrich, W R Etchells, J W Fawcett, A W Francis, Jr, C N Gerenz, R A Glinski, B Goldstein, L J Green, A D Grover, D W Halford, D V Hall, F N Handal, W L Heppenstall, Jr, L J Hogan, J C Hornsey, A W Hunter, W H Jewell, T F Joyce, R E Kimble, G H Lourigan, B Marcus, M J Marriott, C P Masterson, F P McKenna, T P McNamara, Jr, L F Meinhold, A E Mikus, T Moriya, R L Morter, Jr, F F Moussa, W H Nuttall, E S Pels, J L Ramey, T H Randall, Jr, L C Renaud, H R Rohletter, K Rosenlind, W E Rusterholz, J F Shanley, P E Sperling, A J Strumar, L E Therrien, G H Torp, E R Tucci, S Vazopolos, C W Wall, C Wiener, E N Young, Jr.

TRANSFERRED FROM OTHER CLASSIFICATIONS TO SENIOR MEMBERSHIP

H I Belton, L O Benoliel, J J Bernard, B H Brinkley, Jr, A DeMaria, R E Derby, Jr, H Evans, B W Furbeck, M W Goodell, W J Jutras, Jr, C J Kurowski, C Liu, P J Martin, M C McDonald, S E Penner, J S Rhodes, M Sparks, Jr, R E Taylor, E E Weeden.

Respectfully submitted,

H C Chapin, *Secretary*

(The Secretary's Financial Report appears on page P210)

SECRETARY'S FINANCIAL REPORT—DECEMBER 30, 1952

	Applications	*Dues, Regular & Reinstate*	*Dues, Corporate & Sustaining*	*Miscellaneous*	*Totals*
Received and transmitted to Treasurer					
August 1 to October 15, 1952..	$ 764.00	$ 8,334.00	$ 1,242.50	$2,408.66	$12.749.16
October 15 to December 30, 1952	1,453.00	26,808.50	22,420.00	4,027.09*	54,708.59
Total in fiscal year to date.....	2,217.00	35,142.50	23,662.50	6,435.75	67,457.75
Leaving deposited by Treasurer with Secretary.....					9,438.78
For comparison, receipts to December 30, 1951.....	2,627.00	33,393.50	17,385.00	8,048.25	61,453.75

* Miscellaneous items

Dividends	$ 394.80
For American Dyestuff Reporter Awards	1,093.00
Reimbursement for mailing expenses, Boston Convention	499.19
Office equipment sold	12.00
Reporters and reprints	264.24
Year Books	862.70
Crockmeters	247.20
Moth cloth	72.00
Water test apparatus	140.01
Dyed standards	91.10
Knitted tubing	138.00
Gas fading unit	1.00
Buttons	30.00
Color transfer charts	72.35
Flammability apparatus	1.00
Analytical Methods	86.00
Standard grease wool	22.50
	$4,027.09

H C CHAPIN,
Secretary

Hudson-Mohawk Section Meeting Report

February 6, 1953
Jack's Restaurant, Albany, N Y

THE first meeting of the 1953 calendar year for the Hudson-Mohawk Section was held on Friday, February 6th, at Jack's Restaurant, Albany, New York. The speaker for the evening was Eskel Nordell, Administrator of the Laboratories, Permutit Company, New York, N Y. Mr Nordell presented a paper entitled "Water Conditioning for the Textile Plant." Mr Nordell's paper was accompanied by numerous slides and exhibits of various chemicals used in water treatment.

John J Hanlon, Technical Director, Mohawk Carpet Mills, Amsterdam, New York was elected councilor replacing the late Jack Epelberg. Forty members were present for the dinner and 45 were in attendance for the presentation of the paper.

Respectfully submitted,
WILLIAM A NELSON
Secretary

Minutes of the Organizational Meeting, Washington Section

January 9, 1953

Watergate Inn, Washington, D C

FIFTY-SIX members met at the Watergate Inn on Friday, January 9, 1953, to organize the Washington Section of the AATCC. A list of those who were present is appended to this record of the meeting.

Following dinner, the meeting was opened formally by Walter M Scott, designated secretary *pro tem* by the Council. He expressed his pleasure at being able to participate in the formation of the Section, and reviewed the background of interest in such a group in Washington and environs. He also outlined some of the valuable work the new Section could perform.

Dr Scott then introduced J Robert Bonnar, AATCC President, who expressed his pleasure at being present, declaring that the Council and the entire Association were very pleased with the Section's formation. Mr Bonnar pointed out that the Washington Section would be somewhat unique in that the interests of the membership centered primarily on research. He encouraged the members of the new section to make their own plans and take advantage of the wealth of speakers within their membership.

Dr Scott next introduced William D Appel, National Bureau of Standards, a Past President of AATCC. After expressing his gratification that a Washington Section was being formed, Mr Appel reviewed some of his own work with AATCC and described some of the Association's current undertakings. Mr Appel was named Chairman of the Nominating Committee, which included James H Kettering, Alfred R Macormac, Dorothy Nickerson and Arnold M Sookne.

The following slate of officers was presented by the Nominating Committee and unanimously elected:

Chairman .....Milton Harris
Vice Chairman.....Henry D Barker
Secretary.....George S Buck, Jr
Treasurer.....Herbert A Ehrman
Councilor.....Walter M Scott

Mr Appel stated that the names for the additional four members of the Sectional Committee had not yet been proposed, because it was thought that these should represent some of the outlying districts, such as Baltimore, Richmond, Cumberland, Hagerstown, Fredrick, etc. It was felt that these representatives could be selected at a later time.

Dr Scott then turned the meeting over to newly elected Chairman Milton Harris.

Dr Harris commented on the enthusiasm with which the new section has been supported by not only those in Washington but by members of the Association who had come to this meeting from points as far away as Richmond and Cumberland. There were also representatives from Baltimore and Charlottesville at the meeting. Dr Harris pointed out that practically every branch of the Government is represented in the new section, and that the Government is one of the biggest forces in research today. He also said that the section is well balanced by industrial representatives from both Washington and the surrounding areas.

Following some additional comment, Dr Harris discussed with the group times which might be appropriate for future meetings.

The meeting, after some further discussion of the activities in which the new group would be engaged, was adjourned at 9:45 p.m.

Respectfully submitted,
GEORGE S BUCK, JR
Secretary

Those attending the organizational meeting of the Washington Section: Emily W Akin, J C Alexander, William D Appel, John L Baggett, Richard Barber, Gordon Barber, Herman Bogaty, J Robert Bonnar, George S Buck, Jr, Henry A Cathey, Frank J Clark, Suzanne Davison, George H Dockray, M J Fisher, Hazel Fletcher, Lyman F Fourt, Dan Frischman, George P Fulton, Margaret S Furry, Nelson F Getchell, Robert T Graham, Robert J Grant, Milton Harris, Lawrence L Heffner, Conrad Hohing, Ruth M Howorth, Eric A Johanson, S J Kennedy, James H Kettering, D C Knowles, Alice Linn, Alfred R Macormac, G Dent Mangum, Jr, Albert Martin, Frank Masterson, Verda I McLendon, Louis R Mizell, Dorothy Nickerson, Ruth O'Brien, William H Payne, Arthur Pendleton, James W Rice, Joseph H Rosenbaum, Daniel F Savanuck, Robert Saxon, Walter M Scott, F A Smith, Leonard Smith, Arnold M Sookne, Raymond Steinbach, Robert E Stevenson, Roy Ward, Charles Waters, James W Whitworth, A J Wuertz, William E C Yelland.

Rhode Island Section
Meeting Report

February 27, 1953

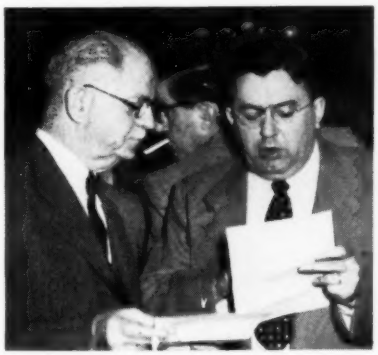
Johnson's Grille, Providence, R I

AT the February 27th meeting of the Rhode Island Section, held at Johnson's Grille, Providence, R I, J Robert Bonnar, AATCC President spoke on "The Past, Present and Future of the AATCC," and Boyce Bond, Pittsburgh Coke and Chemical Co, gave a paper entitled "The Bond Dyeing Machine."

One hundred and fifty members attended the dinner before the meeting and approximately 175 attended the technical session.

Respectfully submitted,
R G THOMAS, *Secretary*

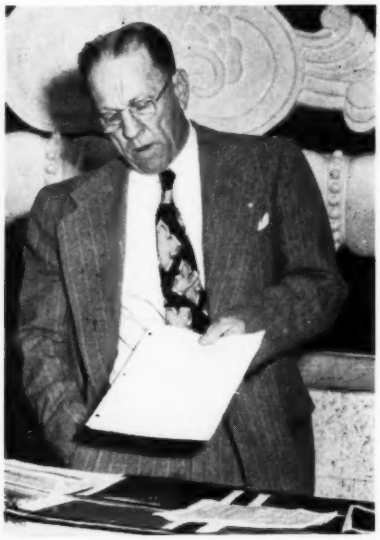
Councilor Thorwald Larson, Carbic Color & Chemical Co, Inc (left) discusses matters with President J Robert Bonnar, General Dyestuff Corp



Councilor Raymond W Jacoby, Ciba Co, Inc (left) in a confab with Chairman Ernest J Chornyei, Bradford Dyeing Association (USA)

(Photos by Kenneth C Everett)

General Dyestuff Corporation representatives Wilfred A Lord (left), Warren M Dewing (center) and Rene Moran



Boyce C Bond delivers his talk on "The Bond Dyeing Machine"

(L to r): George Baxter; J Robert Bonnar; David Curtis, Kenyon Piece Dye Works; and Past President Henry Herrmann, General Dyestuff Corporation

A commercial photographer shows his wares to Thorwald Larson (standing); Treasurer J William Timperly, Kenyon Piece Dye Works (seated, left); and Vice Chairman Arthur F McLean, Glenlyon Print Works (seated, right)

(L to r): Boyce C Bond, Pittsburgh Coke & Chemical Co; National Corporate Membership Chairman George Baxter, Bradford Dyeing Association (USA); Thorwald Larson; Councilor Edward Lawrence, Cranston Print Works

(Additional Meeting Photos on page P212)

RHODE ISLAND SECTION MEETING— FEBRUARY 27, 1953

Photos by John Trezise

• PATENT DIGEST •

PAUL WENGRAF

FLUORESCENT DYED FABRICS——— Using Dyes in Dilute Alcoholic Solutions C, 4, 07

USPat 2,606,809
(Switzer and Ward—Aug 12, 1952)

This patent covers a fluorescent-dyeing process well known in the trade. The method has been partly described in Brit P 644,201 of J L and R C Switzer (cf *Am Dyestuff Reptr* 40, 106 [1951]), which is similar to the current invention. The present patent was filed several years before the British Patent, according to the priority dates.

The essence of this patent is a method by which fluorescent dyes may be applied to cellulose acetate fibers, and to a lesser extent, to other fibers, such as silk or cotton. The dyeings can be carried out with solutions of dilute alcohols or other solvents. Ethanol is used most extensively, but some examples cite the use of glycerin, Cellosolve, isopropanol or acetone. The agent has to be a mutual solvent for the dye and water, i e, completely miscible with water, and be able to exhibit a solvent or wetting action on the fibrous material. The dye must be more soluble in the solvent than in water. The fabric immersed in the colored aqueous solvent is quickly flushed after sufficient penetration of the dye to "kill" the dyeing action, i e, the dyestuff quantity absorbed by the fiber is strictly limited (to about 0.8%) while excess dye adhering to the surface is removed, and the fibers are reconverted by cold rinsing to a nonswollen state.

An explanation of the effect is suggested as follows:

Standard dyeing methods may cause agglomeration of the dye molecules (11) as illustrated in Figure 1. While these molecules may normally exhibit fluorescence, too much concentration on the surface will cause unsatisfactory fluorescent effects, probably because of an absorption of the fluorescence-generating rays (12) by the dye particles. In contrast see Figure 2—dye molecules (21) penetrating deeper into the fiber (20) will exert fluorescent effects similar to those in aqueous dye solutions. Neither the "fluorescigenous radiation" nor the emanated visible light will be lost because of absorption by dye molecules accumulated on the surface.

Example: m-diethylamino phenolphthalein is dissolved at a ratio of 0.1% in 40% aqueous ethanol. A dry cellulose acetate fabric is immersed for 20 minutes at room temperature in this bath (ratio: 15 p acetate

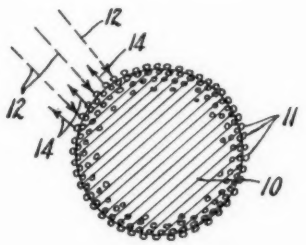


Fig 1—USP 2,606,809

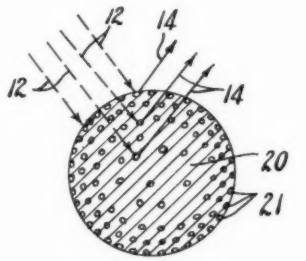


Fig 2—USP 2,606,809

rayon to 40 p dyebath), then removed and quickly rinsed with cold water in order to clean the material from adherent traces of dye. The fabric after tentering and calendering, exhibits a brilliant fluorescent red in U V light and a somewhat different brilliant red (termed "Neon Red") in visible light.

The good penetration and the carefully controlled, relatively small amount of dyestuff retained by the fiber are characteristic of the method and are necessary for attaining the desired effect. The swelling action of the solvent on the fiber is obviously a very slight one. The bath temperature has to be restricted, according to the claims, to a temperature "below that which swells the filaments to coalesce", thus avoiding substantial softening of the fibers.

Among the references cited by the Patent Office:

USPat 2,344,973 (Celanese Corp/1944): dyeing cellulose acetate with water-insoluble dyes, dissolved and applied in a solution containing at least 70% of alcohol.

USPat 2,341,009 (Richards Chem Works/1944): brightening leather or textiles by adding certain photoluminescent substances, such as esculine (extract from bark of horse chestnut tree), quinine derivatives, salts of anthracene disulfonic acid, etc, to the dyebath.

USPat 2,275,290 (Formica Insulation Co/1942): luminous laminated products, consisting of an inner sheet containing a fluorescent material and a transparent cover, produce different color effects in daylight and in U V light.

USPat 2,274,251 (Celanese Corp/1942): coloring cellulose ester yarns by applying the dye from mixtures of low-boiling and high-boiling solvents.

USPat 2,247,259 (F D Snell/1941): marking furs or skins for identification by impregnating with solutions of fluorescent substances, such as anthracene- or quinine derivatives.

USPat 2,089,413 (Imperial Chemical Industries/1937): fluorescent effects may be obtained by applying dibenzoyldiaminostilbenedisulfonic acid together with the dye or, in the case of undyed fabrics, on white yarns for brightening effects.

USPat 2,033,976 (H Dreyfus/1936): producing luminous effects on textiles by applying phosphorescent pigments, e g, zinc sulfide, together with a swelling agent on cellulose acetate.

USPat 1,188,775 (Hewitt/1916): cellulose acetate solutions of varnish consistency are mixed with Rhodamine and glycerin to give fluorescent coatings.

Brit P 412,952 (Imperial Chemical Industries/1934): rapid-dyeing of cellulose acetate films or sheets by immersing the material for a very short time in a solution of a basic dye in aqueous alcohol and drying.

An article by Mougeot ("Fluorescence", translated by P J Wood, *Am Dyestuff Reptr* 26, 297 (1937) discusses fluorescence of organic dyes and the influence of the nature of the textile fibers and mordants on these effects. The dyes and intermediates causing fluorescence are characterized.

—♦ ♦—

SHRINKPROOFING WOOL——— Polymers of Glycidyl Esters of Unsaturated Acids A, 2, 04

USPat 2,606,810
(American Cyanamid—Erickson, Thomas——Aug 12, 1952)

This patent refers to various shrinkproofing methods that had been developed previously for wool or other protein fibers. The inventors state that reduced shrinkage and felting have been obtained at the sacrifice of other desirable properties, that some of the standard treatments damage the fibers or impart harshness or that the effect is not sufficiently durable.

The current invention suggests the impregnation of the material with a composition of (1) a monomeric glycidyl ester of an unsaturated acid, especially glycidyl acrylate . . . $CH_2{:}CH—COO.CH_2—\underset{\diagdown\,\diagup}{\underset{O}{CH}}—CH_2$

or the corresponding methacrylate or crotonate and (2) a monomeric compound, different from (1) but copolymerizable therewith, e g, ethylacrylate, styrene, acrylonitrile, etc. The ratio of the components is within the limits of 3—100% for (1) and a maximum of 97% for (2). Thus the glycidyl esters alone may give the effect desired without adding monomers of type (2) as exemplified in this specification. After impregnation of the textiles with a solution or dispersion of the monomers, polymerization to insoluble products is carried out by curing.

Satisfactory results are said to be obtained using lesser amounts (8-10%) of these treating agents than those quantities employed in standard methods (16%). Higher concentrations (15-30%) may be used, however, to produce weighted materials. That a full soft hand is produced on the fabrics and that the polymers or copolymers are not reactive with water (unlike isocyanates) is especially advantageous, the latter point suggesting that they might be readily applied in an emulsified or dispersed state. It is frequently possible to have polymerization proceed by merely allowing the material to stand for a long period (4-12 *weeks*) at room temperature; the process can be accelerated by heating (optionally, under superatmospheric pressure) above the boiling point of the monomers or by combined action of U V light and elevated temperature. Inorganic or organic peroxides as well as other polymerization promoters may be used as catalysts.

Example: 5 parts of glycidyl methacrylate and 45 parts of ethylacrylate are dissolved in water after which an anionic emulsifier (di-ethylhexyl-sodium sulfosuccinate, i e, Deceresol OT), hydrogen peroxide and some disodium phosphate are added. After polymerizing (by heating and by removing the unreacted monomers), the strained emulsion, containing about 15.8% of the copolymer, was applied to woolen cloth; the reaction products were insolubilized by heat. One of the samples cured for 6-8 minutes at 300-400° F shrunk 8% in 5 washing cycles of 10 minutes each; another sample treated in a steam pressure chamber at 240° F and then heated in an oven to 400° F shrunk only 2.2% in the same washing treatment.

Among the references cited by the Patent Office:

USPat 2,538,072 (Devoe & Raynolds/1951): polyepoxides, i e, polyglycide ethers of polyhydric alcohols, may be obtained by reacting (poly) chlorohydrin ethers with alkali aluminates, alkali silicates or alkali zincates.

USPat 2,524,432 (Du Pont/1950): esterifiable epoxy compounds, such as epichlorohydrin, reacted with methacrylic acid or other unsaturated substances under neutral or alkaline conditions, produce plastic and polymeric compounds.

USPat 2,499,653 (American Cyanamid/1950): felt- or shrinkproofing proteinaceous fibers by 1) treating with a polymerizate of maleic anhydride and a major part of an alkyl-acrylic ester and 2) curing the product upon the fiber (Cf *Am Dyestuff Reptr* 39, 338, 1950).

USPat 2,476,922 (Shell Development/1949): glycidyl allyl phthalates or other mixed esters, e g, glycidyl allyl maleates, glycidyl vinyl phthalates, etc, were found to polymerize to infusible resins.

USPat 2,470,324 (Distillers Co/1949): allylglycidyl ether copolymerized with vinylidene chloride or other halogen-containing ethenoids are said to improve heat- and light stability.

USPat 2,413,755 (Am Cyanamid/1947): softening or creaseproofing agents of the cation-active type are prepared by reacting a triazine (especially ammeline) with a compound cantaining an ethylene oxide ring, e g, glycidol.

FLAMEPROOFING TEXTILES——— Concentrated Titanium-Antimony Solutions G, 2, 03

US Pat 2,607,729
(Du Pont—Dills—Aug 19, 1952)

The preamble to this patent refers briefly to prior means of preparing flame-resistant fabrics, and especially to USPat 2,570,566/1951 (see references), which covers a flameproofing process based on titanium-antimony compounds and which passes the rigid A A T C C fire-resistance test.

An improvement on this process, providing similar flame-retarding compositions in more concentrated form, is disclosed by the current specification. The composition produced, according to the new method, is in a solid, readily water-soluble state.

The object of this invention is attained by reacting three mols titanium chloride with one mol antimony trioxide according to the equation $3TiCl_4 + Sb_2O_3 \rightarrow 3TiOCl_2 + 2SbCl_3$. Excess titanium tetrachloride causes development of fumes, which can be eliminated by adding more water to convert the nonreacted tetrachloride into oxychloride. It is preferable, however, to work according to the above equation. But the invention is not limited to the molar ratio shown in this equation. By the reaction of 1, 2 or 4 mols $TiCl_4$ with 1 mol Sb_2O_3, compositions of varying content on titanium oxychloride result. The reactants are mixed in the form of dry powders. A trace of water is added to initiate the reaction, whereupon some heat is generated for its possible catalytic effect. The reaction starts readily and spreads throughout the mass.

Example: 100 p antimony trioxide are slurried in 190 p anhydrous titanium tetrachloride and stirred to a homogenous suspension. Water is added dropwise until the reaction starts. Heat is generated and some fumes appear that are eliminated by adding 18 p water. A dry, powdery material, readily soluble in high concentration in 20% hydrochloric acid, is obtained. A viscose rayon blanket, impregnated with this solution, squeezed and neutralized after 15 minutes storage with concentrated soda ash solution, was found to contain 7.5% of TiO_2 and 7.0% of Sb_2O_5. The material was flameproof according to the A A T C C regulations.

The effect is due to a treatment of materials that react chemically with the flameproofing agents. Chemically inactive fibers, such as polyacrylonitrile filaments, cannot be flameproofed by this process; modified fibers rendered reactive by different methods are used. Methods of this kind comprise partial hydrolysis, copolymerization with products containing free OH-, amido or carboxy groups, etc, or incorporating reactive substances during the spinning process.

Among the references cited by the Patent Office:

USPat 2,570,566 (Du Pont/1951) (cf *Am Dyestuff Reptr 41,* 87 [1952]): a fabric is immersed in a titanium-antimony solution, then treated with an alkaline neutralizing agent, and finally rinsed with water to remove loosely adherent oxides and salts.

USPat 2,461,302 (Truhlar-Pantsios/1949): flameproofing with a solution of 80 p acetone, 20 p antimony chloride and 8 p triamylphosphate.

USPat 2,427,997 (White/1947) (cf *Am Dyestuff Reptr* 36, 720 [1947]): impregnating with sodium carbonate, drying, preparing with Sb_2Cl_3 in solvent solution, passing through soda ash and aftertreating with chloroparaffin solution.

USPat 2,395,922 (Timmons/1946): a flameproofing coating containing resins and metal oxides, such as coumarone-indene and antimony trioxide combined with titanium dioxide.

An article by Gulledge and Seidel in *Ind Eng Chem,* 440, March, 1950, describes the action of titanium-antimony compositions ("Erifone" flame retardants) apparently combining with the cellulose molecules. Industrial applications are discussed.

FLAMEPROOFING——— Melamine-Phosphorus Pentoxide To Prevent Afterglow G, 2, 03

USPat 2,603,614
(Monsanto Chem Co—Nielsen, Nason——July 15, 1952)

The phenomenon of afterglow which occurs in the ignition of flammable substances is discussed in the preamble to this specification. While antimony oxide or other metal oxides bring about the suppression of the "pyrogenic decomposition of the cellulose" they are said, on the other hand, to be re-

sponsible for the afterglow, termed here as "flammable combustion". Antimony oxide appears to cause afterglow particularly in combination with polyvinyl chloride or chlorinated paraffins. The object of the present invention is to avoid this drawback, especially in resin coatings.

According to the present patent, fireproofing compositions for eliminating afterglow consist of a combination of phenol-formaldehyde- or resorcinol-formaldehyde resin with a reaction product of melamine and P_2O_5, described in the copending USPat 2,544,706 (see references).

Example: Three mols of melamine were mixed with one mol of phosphorus pentoxide and fused by heating to 400° C. The resultant product was investigated by X-ray diffraction measurements and found to be an amorphous rather than a crystalline material, lacking the characteristics of a phosphate. It forms a white infusible, mass which has to be ground to a fine powder and mixed with a phenol-formaldehyde resin. This mixture is dusted on loose cotton fibers, applied in form of a suspension, etc. A flameproofing effect may be observed with no afterglow.

Although the present invention refers primarily to coating compositions, important conclusions may be drawn on flame- and glowproofing methods in general.

References cited by the Patent Office:

USPat 2,464,342 (Pollak and Fasal/1949) (cf *Am Dyestuff Reptr* 38, 478 [1949]): a flameproofing process which consists of impregnating with a solution of a melamine-formaldehyde condensate and a phosphoric acid salt of a volatile base (ammonia, amines or hydrazine).

USPat 2,544,706 (Monsanto Chem Co) (quoted in the specification): describing the formation of an insoluble complex mentioned as a delustrant for plastics.

Further reference is made to USPat 2,401,440 (Monsanto Chem Co) (cf *Am Dyestuff Reptr* 35, 440 [1946]) mentioning insoluble flame-resistant derivatives of cellulose with phosphonamides prepared from phosphorous and ammonia. (See also the references at the end of the digest of USPat 2,607,729, immediately preceding this.)

STABILIZING REGENERATED CELLULOSE——— Two-Step Treatment G, 2, 04

USPat 2,608,494
(Walkden, Makin & Co—vom Howe——
Aug 26, 1952)

Prior work with stabilized cellulosic fabrics is characterized by the formation of resin condensates within the fibers and processes of this type are briefly enumerated in the introduction to this specification.

In contrast to a two-step process, comprising a pretreatment with urea and an aftertreatment with formaldehyde, that has been advocated in the past, the following method is protected by the present patent:

(a) Impregnate with a weak, sparingly water-soluble organic acid containing hydroxy groups and ammonia or an amine such as urea, melamine, hydroxylamine, etc.

(b) Follow by a treatment with a solution containing formaldehyde and an acid-antimony salt (lactate or tartrate).

The content on organic acids in (a) might be reduced when organic amines are used. Examples of organic OH-containing acids are ricinoleic- or betaoxynaphthoic acids combined with ammonia or other organic acids such as lauric, caproic or oleic aids in combination with organic amines.

Example: After a crepe cloth was impregnated with bath (a) and squeezed to a pick-up of 80%, it was dried and impregnated again with a solution of 2.5-5% antimony-lactate and 5-7% formaldehyde. After being squeezed, dried and baked at 150° C, the treated fabrics shrinkage figure was 1.4%; this result persisted after three washing cycles. A similar but untreated fabric shrunk about 24%.

This method has been especially advocated for treating crepe fabrics containing (at least partly) artificial silk threads.

References cited by the Patent Office:

UsPat 2,242,565 (Heberlein Pat Corp/1941): water-repellent finishes may be obtained by reacting hexamethylenetetramine in solvent solution with a higher fatty acid chloride and treating the reaction product with a tertiary base (pyridine) to obtain quaternary compounds which will decompose in baking.

USPat 2,191,362 (Ciba Products/1940): impregnating fibers with melamine-formaldehyde condensates and curing at low temperatures to obtain permanent (stiffening, softening and/or water repellent) effects, according to components added to this preparation.

USPat 2,175,183 (Celanese/1939): creaseproofing by pretreating with an acid aldehyde solution and aftertreating with a higher fatty compound, such as ethylstearate or triethanolamine oleate.

USPat 2,165,265 (I G Farben/1939): hydrophobing textiles by first immersing in a higher amine- or amide solution and then aftertreating with an aldehyde or by using emulsions of the corresponding aldehyde condensates in the form of their methylol-compounds.

Brit P 501,288 (Imperial Chemical Industries/1939): using an anticrease finish combining a urea-formaldehyde precondensate with a quaternary pyridinium compound of the "Zelane" type and baking.

Brit P 495,714 (I G Farben /1938): impregnating with a stearic acid methylolamide combined with an aldehyde precondensate and curing for water-repellent purposes.

Further reference is made to Brit P 484,691 (Raduner /1936): shrink-resistant textiles may be obtained by impregnating with an aldehyde and a catalyzer or by using higher fatty derivatives, such as amides, to combine with the aldehydes.

SHRINKPROOFING WOOL——— Acid Colloidal Solutions of Melamine Resins A, 2, 04

USPat 2,609,307
(American Cyanamid—Fluck, Lynn——
Sept 2, 1952)

Former methods for felt- and shrinkproofing wool are not considered to be completely satisfactory since some are apt to damage the fibers' substance, others impair the wearing qualities and the soft natural hand of the material, and still others fail to give permanent effects.

Reissue Pat 22,566 (see references below) covers a method wherein fabrics are impregnated with alkylated methylolmelamines, after which the resin is cured. This was found to give very good results, but it is necessary to subject the fabrics to temperatures of 200° F and more.

A solution to this problem (protected by the present patent) consists of applying to all-wool or wool-blend fabrics a colloidal aqueous solution of a polymerized cationic amino triazine-aldehyde condensate containing an acid. This resin, termed "Resin A", is prepared by dissolving methylated trimethylolmelamine at 80-90° F in water, then stirring glacial acetic acid in this solution and allowing it to age for 12-16 hours. This colloidal solution, containing about 3.5 mols acetic acid for one mol methylated trimethylolmelamine, may be further diluted with water as desired before application. Acetic acid can be replaced by other aliphatic monocarboxylic acids as described in USPat 2,345,543 (see references below), such as formic, propionic, butyric, isobutyric, gluconic, glycollic or lactic acids. Instead of melamine, other amino triazines containing reactive NH_2- groups (ammeline, formoguanamine) can be employed, but methylolmelamines alkylated with lower alcohols are preferred.

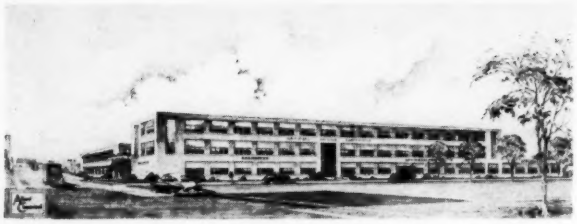
Example: a 100% wool fabric is immersed twice in a colloidal solution of 8% of "Resin A", squeezed to a 100% pick-up and dried to size at 225° F for 6 minutes. This fabric is then neutralized and dried. After 5 washing operations the warp shrinkage was 4.5% and the filling shrinkage 2% (as compared to figures for the untreated material of 20.5% and 18%, respectively). Even tensile strength was found to be superior to that of the untreated material, when subjected to a deterging and softening process.

Among the references cited by the Patent Office:

USPat 2,485,080 (American Cyanamid

(Concluded on page 220, Column 3)

NEWS



A Sketch of the Proposed $2,800,000 Building to be Erected by Allied Chemical & Dye Corp in Buffalo

• Allied to Expand Buffalo Facilities

Allied Chemical & Dye Corp has revealed plans for a new building at an approximate cost of $2,800,000 to be erected at Buffalo, N Y, as housing for the research and engineering staff of its National Aniline Division. The 3-story brick and steel building reportedly will provide 85,000 square feet of floor space for offices and laboratories for the chemical and application research staff and engineering personnel.

The new structure will include library, machine shop, glass working shop, drafting and blue print rooms, dye testing equipment and other specialized facilities. Occupancy is anticipated in the spring of 1954. Adjacent land is available for future additions of small scale manufacturing equipment and pilot plants.

• Caprolactum Plant to be Built in W Va

Plans have been disclosed for a new plant to be built by Mathieson Chemical Corporation at Morgantown, West Virginia, to produce caprolactam, a raw material to be used in the production of nylon fiber.

The new plant is expected to be the first in the chemical industry to produce commercial quantities of carprolactam and will provide a source of raw material for American Enka Corporation in the manufacture of nylon. American Enka was recently licensed to produce nylon under Du Pont patents and is building a new nylon fiber plant adjacent to its rayon yarn factory at Enka, North Carolina.

Mathieson has emphasized that it intends to confine its activities to the production of monomers and will not go into production of fiber. Morgantown was reportedly chosen as the site for the plant because of its natural geographic location and the availability of raw materials.

Algemene Kunstzidjde, N V, Arnhem, Holland, an affiliate of American Enka, has been manufacturing nylon from caprolactam at a plant at Emmen, Holland, for some time.

• Rohm & Haas Announces Completion of New Acrylic Monomer Plant

Rohn & Haas Company has recently completed and put into operation a new plant for the production of acrylic monomers, raw materials used in the manufacture of the company's Rhoplex finishes, Acrysol sizes, and other products. The new plant represents an $8,000,000 addition to the company's petrochemical operations at Deer Park, near Houston, Tex, according to Dr D S Frederick, Vice President. It is reported that an entirely new process is being used employing as its raw materials acetylene, carbon monoxide, and various alcohols.

This is the second $8,000,000 installation at Deer Park for the production of acrylic monomers. Two years ago, the company completed a plant there for the manufacture of hydrogen cyanide. Dr Frederick stated that these major investments in plant facilities reflect the company's determination to maintain its leadership in the field of acrylic products, by manufacturing them from basic raw materials rather than purchased intermediates.

Correction on Carbic Advertisement

WE regret that the color in the advertisement of Carbic Color & Chemical Company, Inc, on page 30A of our February 16th issue was printed in the wrong shade. Realizing the importance of correctly matched colors, we call your attention to the fact that the advertisement appears on page 32A of this issue printed in the correct shade.

• 3rd Textile Workshop

The Third Annual Textile Workshop will be conducted at Lowell Textile Institute June 10-July 1 this year under the joint sponsorship of the Institute's Summer School and the LTI Research Foundation.

The course of study has been designed to meet the particular needs of industrial research personnel in the manufacturing, processing and evaluation of modern textiles. Demonstrations and instruction will be expanded and integrated with advanced theoretical concepts of textile research and technology during seminars conducted by prominent textile scientists. As before, several field trips will serve to coordinate theory and practice.

Participants in the Workshops in 1951 and 1952 included representatives from Monsanto Chemical Company; Celanese Corporation; Dow Chemical Company; the Dow-Corning Corporation; B F Goodrich Company; Calco Chemical Division; Orr Felt and Blanket Company; Buffalo Electro-Chemical Co; Mohawk Carpet Mills; and John Waldron Corporation.

The 1953 program will open with a course orientation and survey of the textile industry after which two options, textile manufacturing and textile dyeing and finishing, will run concurrently. Both conclude with a course in Testing and Evaluation of Textile for End-Uses.

Professor John H Skinkle will again serve as technical director for the Workshop and Associate Professor Ernest P James, Director of the Summer Sessions, will assist him. Requests for more detailed information and correspondence relative to registration should be addressed to Professor James at Lowell Textile Institute, Lowell, Mass.

• Cyanamid to Operate Pilot Plant in Connecticut

American Cyanamid Company will construct and operate an experimental chemical pilot plant in Waterbury, Connecticut, under contract to the United States Government, it is learned. The unit reportedly will be under the general supervision of Cyanamid's Stamford Research Laboratories and W C Zmachinsky will be Waterbury Operations Manager when operation of the unit begins.

Although the nature of the new operations cannot be revealed, it is anticipated that the pilot plant will eventually employ a total of about 75 people.

• 90 Industries to be Represented in BIF

Twenty-five hundred manufacturers representing 90 industries will participate in this year's British Industries Fair, April 27-May 8, in London and Birmingham. It is estimated that over 1,000,000 square feet of exhibit space will be utilized for the Fair, which attracted 13,245 visitors from outside Great Britain in 1952 (1,150 from the U S).

The Textiles and Clothing industry will be featured in Earls Court, London, in the Light Industry and Consumer Goods Section.

• New Dyehouse Operating in Allentown

The Lehigh Dyeing & Finishing Corporation began operations on February 2, 1953 at 801 Meadow Street, Allentown, Pa, under the direction of Earl S Dunlap, President and Manager, and Frederick Beard, Manager of the Finishing Department.

Equipment for the new plant has been leased from Penn State Mills, Inc, it is learned.

Mr Dunlap had been with the Alamac Knitting Mills, Inc and its affiliated companies at Indian Orchard, Mass since 1946.

NAMES IN THE NEWS

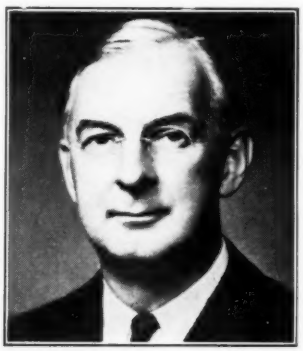
WILLIAM J LOEFFLER, secretary of American Aniline Products, Inc, New York, has retired after 30 years and has assumed an advisory capacity to the Export Department, which he has headed since 1940.

Mr Loeffler, a veteran of World War I and a figure of long standing in the dyestuff and textile chemical fields, has been active in several trade associations, including the AATCC.

W B Burnett

WALDO B BURNETT has been appointed Technical Director of United Carbon Company, Inc, Charleston, W Va, according to a recent announcement by Oscar Nelson, President of that Company.

Dr Burnett recently resigned as Director of the University of Wichita Foundation for Industrial Research, which has done a considerable amount of research work for United Carbon during the past few years. Dr Burnett is spending several months studying production problems in the various plants after which he will establish headquarters in Charleston, West Virginia.



Morris Sayre

MORRIS SAYRE, 69, president of Corn Industries Research Foundation, Inc, and honorary chairman of Corn Products Refining Co, died at Zonguldak, Turkey, of a heart attack on March 7th.

Mr Sayre was in Turkey as a member of a group of businessmen delegated by Harold Stassen of the Mutual Security Agency to appraise the results of American aid. He had expected to return to the United States about the middle of March.

In his long association with the corn-refining industry Mr Sayre was well known to many segments of American business. He was president for several years of Corn Products Refining Co was a former president of the National Association of Manufacturers, and was a director in a number of business, educational and philanthropic organizations.

His home was in Montclair, N J. He is survived by his wife, Mrs Anna Hand Sayre, and by two sons, John M and William M Sayre.

HARRY W CYPHERS, JR has been named Manager of the newly formed Advertising and Sales Promotion Department of American Cyanamid Company's Plastics and Resins Division. The new department is a consolidation of the division's Advertising Department and sales promotion group.

Mr Cyphers served as Sales Promotion Manager of the Plastics Department prior to his new appointment. He was with the Shell Oil Company, New Haven, before joining Cyanamid in 1942.

R B Taylorson

RAYMOND B TAYLORSON now heads the New England office (49 Westminster St, Providence, R I) of the newly formed Dyestuffs Division of Verona Chemical Company, Union, N J. Mr Taylorson recently resigned as Assistant Manager of the Providence office of General Dyestuff Corporation, with whom he had been associated since 1933.

BENJAMIN B MEADY, formerly a technical salesman with General Dyestuff, has also joined Verona Chemical Company's Providence staff.

H W Grimmel

J J Fantry

AT a recent meeting of the firm's directors, HARRY W GRIMMEL was elected President of Metro Dyestuff Corporation, West Warwick, R I, a subsidiary of Metro-Atlantic, Inc, Centredale, R I.

It has also been announced that JOHN J FANTRY will act as chemist in charge of Metro's newly formed Textile Pigment Department, which will produce pigments and clears to be marketed under the trade name "Metrotones."

Dr Grimmel had been an Assistant Professor of Chemistry at the Forest Academy of Tharndt (Germany), later joining the Dyestuff Division of Farbenfabriken Bayer, Leverkusen, Germany. In 1926, he immigrated to the United States and became manager of the Graselli Dyestuff Corporation plant at Rensselaer, N Y—later the General Aniline Works. Under his management, the Rensselaer plant was completely rebuilt and reportedly increased its chemical and dyestuff production by 700 percent.

In 1948, Dr Grimmel resigned from General Aniline to become General Manager of the newly formed Metro Dyestuff Corporation. He is the author of several chemical publications and of 25 patents here and abroad.

Mr Fantry was formerly associated with the research division of Sun Chemical Corporation, where he served as research and development chemist and quality control coordinator. He later was put in charge of research and development in the firm's textile pigment operation.

Although Mr Fantry will make his headquarters at West Warwick, he will work closely with the sales staff of Metro-Atlantic, Inc.

CARL H POTTENGER, Assistant Sales Manager, Chemical Division of Kopper's Company, Inc since 1948, has been promoted to the position of Assistant Vice President and Divisional Sales Manager. He succeeds T C KEELING, JR, who resigned to become President of the Hyrocarbons Division of the Mathieson Chemical Corp, Baltimore. J W POOL, JR, formerly Chemical Products Manager for the Division, takes over Mr Pottenger's former post.

Other news from Kopper's Chemical Division includes the respective appointments of G K McDONALD as Manager of the Kearny, N J, plant and RONALD BARRACLOUGH as Assistant Manager of the Petrolia, Pa, plant.

WALLACE A GRAY has joined the New York sales staff of the Votator Division, The Girdler Corporation, Louisville, Ky.

Mr Gray joined Girdler in 1944. In 1950 he was assigned to the field service and engineering staff, with headquarters at 150 Broadway, New York.

THE appointment of NORMAN AMEND as assistant manager—Organic Chemicals, Michigan Alkali Division—Sales, Wyandotte Chemicals Corporation, has been announced.

Mr Amend came to Wyandotte in 1952 as a technical service representative. Immediately prior to joining Wyandotte he was in the special products department of the Buffalo Electro-Chemical Company.

In his new position, Mr Amend succeeds R K RIGGER, recently named Manager of Wyandotte's new Synthetic Detergents Department.

HENRY TOVEY has been appointed senior literature chemist in charge of the Washington, D C Literature Research Branch of the Bjorksten Research Laboratories, Inc.

JAMES M PERRY, who has been Director of Literature Research with the Bjorksten Research Laboratories, remains in the organization as a consultant, and also in charge of a Government-sponsored program for developing machine methods in searching and correlating scientific information.

F A Soderberg

ANNOUNCEMENT has been made of the appointment of F A SODERBERG as vice president of F C Huyck, Renssalaer, N Y, in charge of sales for the paper-maker felts and mechanical fabrics division.

Prior to assuming his new position, Mr Soderberg served as manager of the Industrial Division of the General Dyestuff Corporation. His professional career began at the Rumford, Maine, plant of the International Paper Company where he worked as a broke handler, beater engineer and development engineer. He was subsequently employed by GDC.

Currently Chairman of the Marketing and Economics Division of ACS, Mr Soderberg's other professional activities are numerous. He is a Past President of the Commercial Chemical Development Association, as well as a Past Chairman of the Pulp and Paper Mill Superintendents Assn. He is currently active in AATCC, TAPPI, ALCA, AICE and SCI.

APPOINTMENT of HARRY E NEW as residential technical sales representative for The Chemstrand Corporation, effective March 1, was announced on Feb 20th by William G Luttge, general sales manager. Mr New will make his office at Decatur, Alabama.

This is the second announcement made concerning additions to the sales staff since February 1. On that date, Chemstrand established a southern sales office at Charlotte, North Carolina.

Mr New has been associated with American Viscose Corporation for the past 14 years. He has been in charge of the cotton division of the Textile Research Department for four years, and was one of the original group who formed the department for AVC in 1939.

Mr New has served as fire protection engineer, specializing in textile and allied industries, with Factory Mutual Fire Insurance Companies, Boston. He also has been associated with Burlington Mills at High Point, N C, and Johnson City, Tennessee.

T J Scanlon

THOMAS J SCANLON, former head of the Philadelphia sales dyestuff laboratory, Calco Chemical Division, American Cyanamid Company, has joined the sales staff of Dexter Chemical Corp, New York, for which concern he will handle the sale of textile chemicals in the Philadelphia area, southern New Jersey and parts of Pennsylvania.

Mr Scanlon, inventor of the Two-Fingered Crock Meter, is currently secretary of the Philadelphia Section, AATCC. In addition to his ten years with Calco, he has had nine years with two American Woolen Company mills—Wood Worsted and Ayer, plus one year with M T Stevens & Co.

He will continue to make his home at 301 Franklin Ave, Springfield, Pa.

RODNEY HUNT MACHINE CO, Orange, Mass, has named DAVID A KUNIHOLM Manager of its Special Products Division in addition to his duties as Manager of the Industrial Roll Division.

JOHN F SHEA, sales manager for Becco Sales Corporation, with headquarters in Buffalo, N Y, has announced the appointment of PHILIP D CAINE, his assistant for the past six years, to the post of New England Sales Manager. Mr Caine succeeds Mr Shea in the New England position.

ROBERT KINDRON of Buffalo, N Y, will assist Mr Caine.

EASTERN COLOR & CHEMICAL CO, Providence, R I, has named JACK H JARRELL as technical sales representative of the Carolinas and Georgia area with offices in Augusta, Ga. The new headquarters in Greenville, S C, will house complete stocks of Ecco products manufactured by Eastern Color & Chemical Co.

Mr Jarrell has served as a printer for twenty years, the last five of which he was Foreman Printer with Clearwater Finishing Co, Clearwater, S C.

E R Adair

C M Lindsay, Jr

METRO-ATLANTIC, INC, Centredale, R I, have announced two personnel moves in their sales and service organization.

E R ADAIR, making his office at the Metro-Atlantic, Inc branch at 1210 New Buncombe Road, Greenville, S C, will assist Henry Papini, (vice-president of Metro-Atlantic, Inc, and its subsidiary, Metro Dyestuff Corporation,) in technical service and sales throughout the South.

CHARLES M LINDSAY, JR will also work out of Greenville under the direction of Mr Papini. His territory will include Alabama, Georgia, Tennessee, Mississippi and Louisiana.

Mr Adair began his carcer with Southern Bleachery and Print Works, Inc, where he spent 10 years, after which he joined the technical sales and service staff of Interchemical Corporation, and later, Southern Dyestuff Corporation, where he remained for a number of years. During the past two years, he was associated with Mr Papini.

Mr Lindsay spent 2½ years with Pacific Mills, Lyman, S C, before becoming overseer of finishing at Gold-Tex Manufacturing Co, Rock Hill, S C. Before joining Metro-Atlantic, Inc, he was overseer of finishing at Lane Cotton Mills Co, New Orleans, for over 3 years.

E Holt

L Baines

BRYANT CHEMICAL CORPORATION has announced the addition to its sales organization of EARL HOLT and LEROY BAINES.

Mr Holt was formerly with the Burlington Mills, Greensboro, N C, in the Finishing Research Dept. He will cover North Carolina and Virginia, working out of the Spartanburg, S C, office in company with JOHN BRYANT.

Mr Baines was fourteen years with the Arms Textile Manufacturing Corp, Manchester, N H, where he was most recently in charge of finishing and dyeing. His territory will include Maine, New Hampshire and Vermont, as well as portion of northern Massachusetts.

ARTHUR WOODBURY, formerly assistant to the head of the Staple Development Department, Celco Research Plant, Celanese Corporation, has joined the staff of the Department of Textile Research, School of Textiles, North Carolina State College.

MARVIN L HUCKABEE has joined the A E Staley Manufacturing Co, Decatur, Illinois, as a research chemist in the textile section of the research department.

Mr Huckabee was formerly employed by Arnold Hoffman & Co, Inc, at Charlotte, N C.

TECHNICAL LITERATURE

Formic Acid

Heyden Chemical Corporation
342 Madison Avenue
New York 17, N Y

Recent research on the uses of this chemical is summarized, along with descriptions of the product's properties, methods of handling and preferred equipment. A survey of the literature on formic acid is an added feature.

The use of formic acid in continuous dyeing of nylon fabrics is reported in the textile section of the bulletin. The use of formic acid to raise a pile consisting principally of wool fibers in fabrics that are mixtures of wool and cellulose is also included in the section.

Fatty Acids Prepared for Action from Nature's Chains

Fatty Acid Division
Association of American Soap & Glycerine Producers, Inc
295 Madison Avenue
New York 17, New York

This 20-page booklet covers the technology and usage of fatty acids from an all-industry point of view. It describes fat-splitting processes, separation of individual acids, such as stearic and oleic, and methods used in purification and chemical modification of the natural acids. A composite flow sheet shows how various animal fats and vegetable oils are processed to yield many different specification products.

A review of major uses for fatty acids of different composition is supplemented with a usage chart showing more than sixty specific applications for these materials. Common terms and tests used in specifying fatty acids, such as titer, iodine value, acid value, and the like are explained. Another section deals with handling of fatty acids and the suitable materials of construction.

Comparative Climatological Data

Desert Sunshine Exposure Tests
7740 Ramona Rd, Phoenix, Ariz

Climatological data on five cities (Poenix, Miami, New York, Chicago and Los Angeles) are offered in this pamphlet including number of hours of sunshine; number of clear, partly cloudy or cloudy days; precipitation, relative humidity, temperatures and wind velocity.

The data and a "sunshine" map of the U S serve to point up Arizona's claim to being the best location for exposure tests (including AATCC fastness-to-sunlight tests) because of the severest climatological conditions.

Constant Temperature Baths

Fisher Scientific Co
717 Forbes Street
Pittsburgh, Pa

This 8-page booklet aids the analyst, bacteriologist, oil chemist and control technician in combining a variety of jars, heaters, stirrers, thermostates and other components to produce precise bath capacity and control. The new "unitized" standard parts are all listed and illustrated.

Protection Against Rot and Mildew with Milmer* 1

Monsanto Chemical Company
Organic Chemicals Division
St Louis 4, Missouri

Specific application information, backed up with tests results showing possibilities of savings by properly combating the ravages of mildew in several industrial fields, is given in this booklet.

Of specific interest to those in the textile field are the soil burial test results which show how inclusion of Milmer 1 (Monsanto's 8-quinolinolate) offers protection from loss of tensile strength due to fungi attack. Effective techniques for the product's incorporation are reported.

Milmer 1 is said to be virtually nontoxic to higher animals and consequently nonirritating to human skin. Although insoluble in water and common organic solvents, it reportedly can be dispersed in oils and various oily liquids.

* Reg U S Pat Off

Color Card No 332—Polar Milling Dyestuffs

Geigy Company, Inc
89 Barclay Street
New York 8, N Y

The dyestuffs displayed in this card represent a range of Milling and Polar colors generally applied in neutral or weak acid dye baths. They are said to produce bright shades and to differ from level dyeing dyestuffs, which require strong acid, in that generally they provide better fastness to washing, perspiration and wet finishing. Inasmuch as these products have good affinity for animal fibers in neutral dyebaths they are used for this purpose to dye wool in fabrics containing blends of wool and cellulosic fibers.

A range of entire new dyestuffs under the series name of "Irgalan" is illustrated also. The Irgalans are said to combine the virtues of the Polar, premetallized and Chrome colors, and to possess excellent fastness to light, washing, fulling and perspiration. Since the Irgalans have almost exactly the same drawing and exhaustion properties, they are compatible in neutral and weak acid baths and can be applied in less time than normally required, it is stated.

US 179—Dyeing of Orlon 41
US 182—Dyeing of Dacron Under Pressure
US 181—Dyeing of Acrilan

Sandoz Chemical Works, Inc
61-63 Van Dam Street
New York 13, N Y

US 179 deals with both dyeing at normal temperatures and, also, the fastness properties of acid, acetate and basic dyestuffs when dyed under a pressure of 250°F.

US 182 gives comparative fastness properties of Sandoz dyestuffs when dyed at the boil and under pressure.

US 181 deals with the general preparation of goods for dyeing, various dyeing procedures and a complete list of fastness properties of Sandoz dyestuffs.

Winter 1953 Edition of Chemonomics

R S Aries & Associates
400 Madison Avenue
New York 17, N Y

Highlights of the newly revised U S patent law are discussed in the latest edition of this four-page publication issued quarterly by R S Aries & Associates.

According to "Chemonomics," points of revision include the definition of inventions, signature requirements, initial assumption as to validity, what constitutes patentable material, use of the "Patent Pending" mark, fee for appeals, and what constitutes contributry infringement.

Other newsworthy topics discussed in this latest edition include nonionic detergents, fiber developments abroad, and others.

Patent Digest—

(Concluded from page 215)

/1949): colloidal aqueous solutions of a resinous copolymer of melamine urea and formaldehyde acidified to a pH of 3-4 with acetic acid (or, according to copending USPat 2,485,079, with hydrochloric acid).

USPat 2,466,457 (*Cyanamid*/1949) (cf *Am Dyestuff Reptr 38*, 563 [1949]): shrinkproofing with an aqueous dispersion of methylated methylolmelamine to which a formaldehyde-binding substance, such as urea or thiourea, has been added.

USPat 2,345,543 (*Cyanamid*/1944): preparing a positively charged colloidal solution or dispersion of amino triazine-aldehyde resins by adding to a mixture of melamine and formaldehyde-concentrated hydrochloric acid at room temperature, diluting after some time and aging at room temperature.

USPat 2,329,622 and Reissue 22,566 (*Cyanamid*/1943): shrink proofing wool by applying an aqueous dispersion of a substantially nonpolymerized alkylated melamine-formaldehyde precondensate and insolubilizing this product by curing.